April 17, 2015

Ms. Kimberly Tisa
United States Environmental Protection Agency
Region 1
5 Post Office Square, Suite 100
Boston, Massachusetts 02109-3912

Re: Risk-Based Cleanup & Disposal Plan
145-155 Beech Street, Chelsea, MA
MassDEP Release Tracking Number 3-17917
CDW Project # 1435.00

Dear Ms. Tisa:

The attached Risk-Based Cleanup & Disposal (RBC) Plan has been prepared on behalf of the City of Chelsea Economic Development Board and Lawrenceville, LLC to summarize proposed polychlorinated biphenyl (PCB) cleanup and disposal activities for 145-155 Beech Street located in Chelsea, Massachusetts (the "Site"). The Chelsea Economic Development Board is the current Site owner and Lawrenceville, LLC is the developer of a proposed hotel on the Site. Lawrenceville, LLC will be responsible for conducting the activities proposed within the RBC Plan.

The removal of approximately 19,232 tons of PCB-contaminated soil from the Site was completed by the United States Environmental Protection Agency (EPA) in 2013 and 2014 as a time-critical removal action (TCRA). Soils were excavated to varying depths between 2 and 14 feet across the Site to achieve EPA's targeted total PCB concentrations as a risk-based cleanup. An orange demarcation fabric was placed on top of remaining PCB-contaminated soils, followed by backfilled soils which were not impacted with PCBs at the conclusion of the TCRA to allow for future redevelopment of the Site. Sampling conducted by Weston & Sampson and CDW Consultants, Inc. from November 2014 through February 2015 determined that total PCBs were detected at concentrations as high as 260 mg/kg in the soil above the demarcation fabric.

The cleanup and disposal activities proposed in the attached RBC Plan are being conducted to facilitate the construction work for the hotel building and subsurface utility installations. The work requires removal of PCB-contaminated soil, managing PCB contaminated soil, and the construction of an engineered cap to prevent exposure to PCB-contaminated soil remaining at the Site. Details regarding this work are provided in the RBC Plan.

Very truly yours,

Lawrenceville, LLC

Mark R. Stebbins
Managing Member

cc: MassDEP NERO

City of Chelsea

Economic Development Board
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Tel: (617) 466-4180
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Richard Pantano
Chairperson

John DePriest, AICP
Staff

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Very truly yours,

Chelsea Economic Development Board

Richard Pantano
Chair, Economic Development Board

cc: MassDEP NERO
Cheryl Fisher Watson, City Solicitor

CDW CONSULTANTS, INC.
CIVIL & ENVIRONMENTAL ENGINEERS

TSCA RISK-BASED CLEANUP & DISPOSAL PLAN

Former Lawrence Metals Site
145-155 Beech Street
Chelsea, MA

MassDEP RTN 3-17917

Prepared for and Submitted on Behalf of:

Chelsea Economic Development Board
Chelsea City Hall
500 Broadway
Chelsea, MA 02150

and

Lawrenceville, LLC
P.O. Box 4430
Manchester, NH 03108

April 24, 2015

CDW Project # 1435.00

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EXECUTIVE SUMMARY

The subject site (the "Site") consists of approximately 1.8 acres of land, representing 2 adjoining parcels, with a street address of 145-155 Beech Street, and an extended bordering parcel of 0.02 acres to the south along Beech Street, within the City of Chelsea, Massachusetts. The Site was listed as a disposal site with the Massachusetts Department of Environmental Protection (MassDEP) in accordance with the Massachusetts Contingency Plan (MCP) in January 1999. The primary contaminants of concern at the Site are polychlorinated biphenyls (PCBs) and metals in the soil. In July 2012, MassDEP requested the assistance of the United Stated Environmental Protection Agency (EPA) to conduct a removal action at the Site. In 2013 and 2014 EPA completed a time-critical removal action (TCRA) that involved the removal of approximately 19,232 tons of PCB-contaminated soil pursuant to a May 14, 2013 *Action Memorandum* which included a *TSCA § 761.61(c) Determination* (TSCA Determination) of the same date.

Following completion of the TCRA, PCB-contaminated soils remained at the Site above 1 part per million (ppm). To address the PCB-contaminated soils remaining at the Site and to facilitate the construction activities and subsurface utility installations associated with building a hotel, the current owner of the Site, the Chelsea Economic Development Board (CEDB), and the future owner and developer of the Site, Lawrenceville, LLC, have prepared this TSCA Risk-Based Cleanup & Disposal Plan (RBC Plan). The objectives of the work to be undertaken pursuant to this RBC Plan are to:

- properly excavate and manage specific soils in the course of the construction of the hotel;
- reduce short-term exposure risks to PCB-contaminated soil associated with construction;
- reduce or eliminate long-term exposure risks to PCB-contaminated soil with the construction and maintenance of an engineered cap;
- collect soil data at the Site to support such purposes; and
- through the collective implementation of these activities, address the outstanding issues identified above with respect to the Site's status under federal and state law.

Under the RBC Plan, certain PCB-impacted soils will be excavated and disposed off-site as PCB remediation waste. Other PCB-impacted soil will be relocated at the Site on the surface to facilitate the re-grading needed to construct an engineered cap over the entire Site. The cap will reduce the potential for direct contact with PCB-contaminated soils that remain at the Site, thereby satisfying applicable conditions of the TSCA Determination, and achieving a level of No Significant Risk as required by the MCP. Recording a deed notice in the form of a notice of activity and use limitation (AUL) will serve to enforce cap maintenance obligations and to address applicable long-term monitoring and maintenance requirements in the TSCA Determination.

1 INTRODUCTION

CDW Consultants, Inc. (CDW) has been retained by the future owner and developer, Lawrenceville, LLC, to prepare this RBC Plan for the excavation, handling and disposal of PCB-contaminated soils at the Site. The Site is currently a vacant parcel of land on which a hotel is proposed to be constructed. This RBC Plan is being submitted on behalf of the owner, the CEDB, and the developer, Lawrenceville, LLC, to facilitate the construction activities and subsurface utility installations associated with building the hotel. The RBC Plan describes the management of PCB-contaminated soils that will be generated as a result of building and utility installation excavations and Site re-grading. The purpose of this RBC Plan is to apply in writing to the EPA Regional Administrator for approval to sample, excavate, and dispose of PCB remediation waste at the Site using a risk-based cleanup approach under 40 CFR §§ 761.61(a) and (c).

2 SITE BACKGROUND & HISTORY

The Site consists of three parcels comprising a total area of 1.8 acres: Lots 17A and 17B on the City of Chelsea Tax Assessor's Map 55, and a parcel currently owned by the CEDB located to the south of Lots 17A and 17B. The addresses of the parcels are 145 and 155 Beech Street. The Site is bounded to the north by Carter Street, to the west by Beech Street, and to the south and east by State Highway Route 1 owned by the Massachusetts Department of Transportation (MassDOT). It is located at latitude 42° 23' 56" N, and longitude 71° 02' 20" W and at approximate Universal Transverse Mercator ("UTM") coordinates 4,696,069 mN, 332,208 mE. A Site Location Map showing features in the general vicinity of the Site is provided as Figure 1. Plans showing the Site and proposed building features are included as Appendix A. Although PCB contamination is known to be present on adjoining parcels and roadways, this RBC Plan is limited to the three parcels described above and shown within the "Extent of PCB Contaminated Area (Within Property Boundary)" on Figures 2, 3, 4, and 5.

2.1 Historic PCB Use

Records were reviewed starting with the 1896 and 1914 Atlases of the City and the 1911 Sanborn Map. As of 1914, the Site was occupied by the Chadbourne and Moore Webbing Manufacturing as part of a larger parcel to the east. In 1930, the owner/operator of this larger parcel which included the Site was the American Barrel Company ("ABC"). ABC remained in business until May 1974 when its facility and the immediately surrounding area were destroyed or severely damaged by a fire that originated on-site. A January 17, 1986 study of the Site completed by Toxic Systems Management, Inc. identified the primary operations of ABC to be cleaning and re-painting of chemical storage drums in preparation for reuse. Both residual chemicals from the barrels and the

chemical cleaners used in the cleaning process were not contained for disposal; waste products were discharged through floor drains and into the underlying soil below the floor of the washroom. The contaminants released by these processes included petroleum, PCBs, volatile organic compounds (VOCs), and heavy metals.

Between 1955 and 1964, the adjacent State Highway Route 1 was constructed, effectively bisecting the larger ABC property, separating the Site from the remainder of the ABC property. Route 1 was built up as a raised roadway, and is approximately 10 feet higher in elevation than the Site.

In May 1974, the on-site building was destroyed by fire and several surrounding blocks of property were damaged. In 1979, the Superior Distributing Company redeveloped the Site with an 18,000 square foot building in the southern portion of the Site. Massachusetts Institute of Technology (MIT) purchased the Site in 1986, and modified the existing building. These modifications included structural changes and utility upgrades. The Lawrence Metals Forming Corporation (LMFC) acquired the Site and began operations on-site in 1986, remaining until 1999. The LMFC operations included the manufacturing of various metal products. CDW personnel witnessed the operations of LMFC prior to their departure, and it did not appear that the LMFC operations resulted in any new contaminant sources. Chemicals were not used in its manufacturing processes, the building was heated by natural gas, and there were no floor drains or tanks observed.

The Site was acquired by the CEDB through a land taking in support of the Everett Avenue Urban Renewal Plan. In 2000, the on-site building was demolished. The Site has been absent of improvements since that time.

2.2 Site Ownership

The Site is part of the Everett Avenue Urban Renewal Area designated under the Urban Renewal Plan, adopted by the CEDB under Chapter 121B of the Massachusetts General Laws. The three parcels which comprise the Site are currently owned by the CEDB. Prior to completing implementation of the RBC Plan, Lawrenceville, LLC will take title to these parcels. Lawrenceville, LLC will be responsible to complete the activities described in this RBC Plan.

2.3 Site Use

The Site is currently vacant of improvements with the exception of a temporary field office construction trailer. The perimeter of the Site is secured with a chain link fence. The Site is unpaved, with uneven topography due to recent EPA excavations and restoration work on the Site. A hotel is planned to be constructed on the northern portion of the Site with paved parking and landscaped areas throughout the remainder of the Site.

2.4 Nature of Contamination

The Site was identified as a release site in 1999 under the MCP, and extensive investigation and remediation activities have been performed on-site since that time. The primary contaminant of concern (COC) in soil is PCBs, with secondary contaminants consisting of VOCs, petroleum-related compounds, and heavy metals. Some of these contaminants have also been detected at low concentrations in the groundwater. All of the contaminants identified in soil and groundwater are likely related to ABC's former operations. The contaminant types and concentrations remaining after the 1974 fire would be those compounds that were resistant to heat and combustion. Subsequent filling and leveling of the Site after the fire may have allowed for the widespread distribution of these contaminants throughout the soil.

Groundwater is located at depths between 2.5 and 4.5 feet below surface grade (bsg). PCBs and heavy metals have been detected in groundwater in the past; however, the removal of approximately 19,232 tons of soil during the TCRA has significantly reduced the overall contaminant mass of PCBs and heavy metals in both soil and groundwater at the Site. In addition, multiple rounds of groundwater testing on-site within the past year showed low or non-detectable concentrations of these contaminants.

Although PCBs are the primary contaminant on-site, heavy metals have also been detected in the soil at the Site. The metals are widespread within the fill materials, at varying depths.

Several underground storage tanks were discovered during the TCRA. The Site impacts from former contents of those tanks, primarily petroleum, appeared to be minimal and were addressed during the TCRA.

Finally, although present, VOC concentrations in both historic and current soil and groundwater have suggested that adverse impacts of VOCs on future building interiors are not likely. This is based on the lack of a definitive path for contaminants between indoor air and soil/soil gas and the low concentrations of VOCs detected in groundwater.

2.5 Previous Assessment & Remediation Activities

2.5.1 Documentation

The assessment and remediation activities which have been conducted at the FLM Site have been documented in numerous reports, letters, and memorandums. Many of these documents are available for public review on the MassDEP Waste Site / Reportable Release Look Up (http://public.dep.state.ma.us/SearchableSites2/Search.aspx). Below is a list of some of the most relevant documents:

- August 2001 Release Abatement Measure (RAM) Plan
- December 2001 RAM Status Report
- March 2002 Phase II Comprehensive Site Assessment (Phase II CSA)
- August 2002 Phase III Remedial Action Plan (RAP)
- March 2003 Phase IV Remedy Implementation Plan (RIP)
- September 2012 Supplemental Phase II CSA
- Action Memorandum/TSCA § 761.61(c) Determination, May 14, 2013
- December 2014 Removal Program After Action Report for the Former Lawrence Metals Site, Chelsea, Suffolk County, Massachusetts, 12 June 2013 through 22 September 2014
- Letter from R. Sherman, EPA Region 1, to Cheryl Watson Fisher, Chelsea Economic Development Board, and Mark Stebbins, Lawrenceville, LLC, re *In the Matter of Former Lawrence Metals Site, 145-155 Beech Street, Chelsea, MA, Docket No. CERCLA-01-2013-0026*, dated September 4, 2014
- July 2013 Revised Phase III RAP
- December 2014 Removal Program After Action Report (AAR)

2.5.2 1999-2004

MassDEP issued Release Tracking Number (RTN) 3-17917 to the Site in January 1999. LMFC was identified by MassDEP as the responsible party for future cleanup efforts on-site. Several subsurface investigations and preliminary response actions were conducted by LMFC to address soil and groundwater impacts. PCBs and lead were identified as the primary contaminants of concern and were the focus of the initial assessment and response actions. Secondary contaminants included petroleum compounds and VOCs.

After the Site was acquired by the CEDB, several investigations were conducted to assess the nature and extent of contamination and to pursue a path to regulatory closure under the MCP. The Site was initially tier classified under the MCP as a Tier II Disposal Site in January 2001 by LMFC. In an effort to reduce the risk of exposure, a Release Abatement Measure (RAM) Plan was submitted to MassDEP in August 2001 to excavate and dispose of contaminated soils. As outlined

in a RAM Status Report of December 2001, approximately 200 tons of soil were removed and transported off-site for disposal. Six soil borings were completed in November 2001, four of which were installed as monitoring wells. Other preliminary response actions included the installation of a fence surrounding the Site to limit public access to contaminated soils at shallow depths.

Subsequent studies were documented in additional submissions filed with MassDEP by LMFC under RTN 3-17917. A Phase II Comprehensive Site Assessment (Phase II CSA) submitted in March 2002 investigated the distribution of lead and PCBs throughout the Site. A Phase III Remedial Action Plan (RAP) was submitted in August 2002, using the information from the Phase II CSA to research and evaluate feasible remedial action alternatives. The Phase IV Remedy Implementation Plan (RIP) submitted in March 2003 established a preliminary design schematic for an engineered barrier to cap the contaminants in place, and reduce the risks of exposure, based on a redevelopment plan proposed at that time. The Phase IV also anticipated the need for additional excavation and disposal of contaminated soil from the southern portion of the Site, long-term groundwater monitoring, and the implementation of an AUL.

2.5.3 2005-2012

In November 2005, a property redevelopment assessment was performed by Remediation & Environmental Management Services, Inc. to further identify the impacts of lead and PCBs across the entire Site. Shallow samples, 0-3 feet bsg, were collected and submitted for analysis for both primary contaminants of concern. The results indicated the presence of both contaminants across the Site, but predominantly in the southern portion of the Site.

In July 2005, the CEDB filed a Tier II Transfer in order to assume the obligations of further assessment and response actions in accordance with the MCP. To support such effort to develop the Site for future re-use, the CEDB filed Tier II Extensions annually from 2005 to 2013, while still working to achieve regulatory closure. Periodic site investigations were performed to further develop conceptual site models of the site conditions, which were reported to MassDEP with Tier II Extension submittals. Both soil and groundwater samples were collected, monitoring wells were installed and groundwater flow was modeled to map the extent of PCBs and lead at the Site. The groundwater flow gradient was measured to be generally flat, with water flowing to the northeast.

2.5.4 Time Critical Removal Action

2.5.4.1 Background

In July 2012, MassDEP requested EPA assistance to conduct an evaluation of the Site. At that time, the Site had been tracked by MassDEP, the CEDB, as well as EPA Brownfields and TSCA programs. A multi-agency team was formed to coordinate cleanup actions in preparation for redevelopment. The team consisted of EPA, the CEDB, the developer (Lawrenceville, LLC), MassDEP, MassDOT, and MassDevelopment.

Various members of the multi-agency team over the next several months undertook additional investigations to collect data in support of the coordinated effort. For one, a Supplemental Phase II CSA was completed on behalf of the CEDB by Weston & Sampson in September 2012. The Supplemental Phase II CSA was conducted to further investigate the vertical and horizontal extent of PCBs in the northern portion of the Site and to measure the concentration of PCBs in groundwater on-site. The Supplemental Phase II CSA addressed gaps in historical investigative efforts conducted on-site. The vertical extent of PCBs was previously measured in shallow soils, and the Supplemental Phase II CSA emphasized the sampling of deeper soils. Groundwater was sampled for the detection of PCBs exceeding regulatory standards and to investigate the potential for contaminated groundwater to flow off-site.

In July 2013 a Revised Phase III RAP was submitted to MassDEP by Weston & Sampson on behalf of the CEDB. The purpose of the Phase III RAP was to investigate possible remedial alternatives for the Site. Based on overall costs, proposed redevelopment of the Site and extent of PCB contamination at the Site, the selected remedial alternative was excavation and off-site disposal of soil with PCB concentrations ≥50 ppm at any location in the northern portion of the Site; excavation and off-site disposal of soil to achieve an average PCB concentration of ≤100 ppm in the southern half of the Site, soil/asphalt capping, and implementation of an AUL. Though the Revised Phase III RAP was not formally submitted to MassDEP until July 2013, the TSCA Determination states that a draft dated October 2012 was part of EPA's documentary review in the time leading up to finalizing the Action Memorandum and the TSCA Determination. According to the Action Memorandum (page 3), the results of the sample analyses from 175 samples from various locations at depths ranging from surface to 9 feet bsg "confirm the finding that the Site meets the criteria identified in the National Contingency Plan for a time-critical removal action."

In March 2013, it was agreed that EPA would conduct removal activities under its Emergency Removal Program, with funding assistance from the CEDB, MassDevelopment and the developer. The Action Memorandum, serving as the decision-making, remedy-selecting document, authorizing

the undertaking of the TCRA and use of the allocated funds, addressed among other things, the following:

- An endangerment determination ("Actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response action selected in this Action memorandum, may present an impingement and substantial endangerment to public health, or welfare, or the environment.");
- Remedial goal ("The goal of this removal action is to eliminate the direct contact threat and decrease the source contamination that is impacting groundwater and adjacent properties by excavating and disposing off-site, soils with lead, PCBs, and other yet unidentified hazardous substances");
- Enumeration of specific actions to be taken to mitigate the threats at the Site; and
- Applicable performance standards to measure success (removal of PCB-contaminated soils so that (1) no individual soil sample exceeded 50 ppm in the northern portion of the Site, and (2) an average of 100 ppm or less was achieved for the soil samples collected in the southern portion of the Site).

The Action Memorandum relied on the TSCA Determination, a risk-based determination made pursuant to 40 CFR § 761.61(c), included as Attachment 3 to the Action Memorandum. Both the Action Memorandum and TSCA § 761.61(c) Determination are included as Appendix B in this RBC Plan. The TSCA Determination constituted EPA's formal declaration of the adequacy of the methods of excavation and disposal of PCB-contaminated soils/asphalt/concrete as proposed in the Action Memorandum to ensure there would be no unreasonable risk of injury to human health or the environment so long as certain enumerated conditions were met during as well as after implementation of the contemplated TCRA. Particularly relevant conditions from the TSCA Determination with respect to post-TCRA status and proposed further actions, are the following:

- Condition #4 with respect to the After Action Report's confirmation that the PCB concentrations remaining at the Site do not pose an unreasonable risk to public health and the environment as required by 40 CFR § 761.61(c), and with such determination, development and implementation of a long-term monitoring and maintenance plan (LTMMP). Such LTMMP is to include at a minimum: a description of the activities that will be conducted, including routine ground surface maintenance activities; groundwater quality monitoring locations, sampling protocols, sampling frequency, and analytical criteria, as applicable; and reporting requirements;
- Condition #5 with respect to the necessity of a deed notice, which the TSCA Determination states may be in the form of an AUL;

- Condition #6 with respect to the requirement that any development or activity on the Site be designed, implemented, and maintained in a manner to prevent any release or exposure to any soil or groundwater that is contaminated with PCB; and
- Condition #7 with respect to the owner's responsibilities in the event that PCBs are identified at areas that were not addressed by the TCRA

2.5.4.2 Implementation

The TCRA was implemented during the period June 2013 through September 2014. As part of the TCRA, both surficial soil and isolated deeper pockets of PCB-impacted soils were excavated and removed, and clean zones surrounding the future building foundations and utilities were created, using the developer's plans for construction. An orange demarcation fabric was laid across the Site to define the final depth of contaminated soil excavation in all areas, including areas where over-excavation occurred to facilitate utility installations, to reduce future worker exposures to contaminated soil. In total, approximately 12,800 cubic yards (19,000 tons) of PCB-impacted soil and concrete were excavated and disposed off-site. Following the installation of the demarcation fabric, the Site was partially backfilled with soils from off-site sources that were pre-characterized as soils that were not impacted with PCBs, but may have similar concentrations of metals and polycyclic aromatic hydrocarbons (PAHs). These activities were documented in a December 2014 Removal Program After Action Report (AAR).

Prior to backfilling, over 200 post-excavation soil samples were collected and analyzed by EPA through the use of x-ray fluorescence (XRF) field analysis, with partial confirmation by laboratory analysis for PCBs using soxhlet extraction, to verify that the removal action achieved the goals of the TCRA. Out of that sampling, two of the 95 confirmatory samples collected in the northern portion of the Site exceeded the goal of 50 ppm. Although nine of the 102 samples collected in the southern portion of the Site exceeded 50 ppm, the goal to achieve an average concentration of 50 ppm or less was met. The EPA stated in a September 4, 2014 letter to the CEDB and the developer on the subject "In the Matter of Former Lawrence Metals Site" that although soils with PCB concentrations greater than or equal to 50 ppm remained in the northern portion of the Site, the excavation and disposal off-site of PCB-contaminated soils and placement of clean soil over the remaining PCB-contaminated soils was adequate to mitigate threats at the Site.

The Site was restored to a variable final grade elevation of approximately 2 feet below the pre-excavation site elevation for the benefit of future redevelopment. Backfill soils were imported to the Site from several sources. Backfill materials included approximately 3,600 cubic yards (5,400 tons) of clean soil from off-site sources and approximately 1,250 cubic yards (2,500 tons) of crushed concrete originating from the former on-site building foundations. In addition,

approximately 3,100 cubic yards of soil with low-levels of metal and PAH contamination was imported and reused on-site in accordance with MassDEP's Similar Soils Provision Guidance (WSC #13-500). The contaminated soils reused on-site were imported from 285 Central Avenue in Chelsea, MA, a site regulated by MassDEP under RTN 3-10694 for the detection of metals, semi-volatile organic compounds and petroleum hydrocarbons. No final groundwater sampling and analysis was conducted by EPA at the conclusion of the TCRA.

2.6 Underground Storage Tank Assessment & Remediation Activities

During the course of the TCRA conducted between July 2013 and June 2014, EPA discovered multiple underground storage tanks (USTs) and a subsurface vault structure at the Site. The USTs ranged in size from 250 gallons to 1,000 gallons, and were located primarily in the northern portion of the former LMFC property. A summary of the size and contents of each buried container is provided below.

Excavation Grid	Cell Size/Type	Contents
G20	250-gallon tank	Gasoline
F20	1,000-gallon tank	Oil
E120	250-gallon tank	Empty
D/C160	(2) 300-gallon vault	Unknown Liquid
F180	(2) 750-gallon tank	Oily Water
G280	275-gallon	Water

EPA removed all of the unknown structures discovered during the TCRA. As part of tank removal, approximately 2,000 gallons of oil, gasoline, and sludge were recovered from the tanks and properly transported and disposed off-site.

Following the removal of the buried structures, the City's Licensed Site Professional (LSP) firm, Weston & Sampson, conducted an assessment to document the UST removals. The assessment included the collection of soil and groundwater samples from four areas of concern to determine if soil or groundwater was impacted by the former tanks and vault structures. The results of the confirmatory testing showed residual concentrations of petroleum fractions and VOCs. None of the detected compounds exceeded MCP reportable concentrations, and there were no further assessment or remedial actions required related to the discovery of these tanks.

2.7 Beech Street Utility Work Incursion

In July 2014, a contractor for the City, performing utility work in Beech Street under a Utility Release Abatement Measure (URAM) Plan (RTN 3-32222), inadvertently crossed property boundaries into the Site. The incursion damaged the orange demarcation fabric and displaced PCB-contaminated soils to the surface where they were temporarily stockpiled. The locations of these utility work incursions are shown on Figure 1 – Select Utility Plan prepared by Weston & Sampson which is included in this RBC Plan as Appendix C. According to Ms. Valerie Thompson of MassDEP as documented in a MassDEP Release Amendment Form – BWSC 102 dated July 17, 2014, on July 15, 2014, the stockpiles were placed directly on the clean cap that had been constructed by EPA without any polyethylene sheeting or any other barrier preventing contamination of the clean cap by the newly-generated PCB-impacted stockpile. Ms. Thompson reported that she contacted the resident engineer for the project, Mr. Manny Maganais of Weston & Sampson, and learned that other utility connections had been excavated beyond the sidewalk, i.e., the property boundary, and onto the Site in three other locations. Mr. Maganais also indicated that soil from the other three utility connections had also been stockpiled on the Site without a polyethylene liner. According to a March 2015 URAM Plan Modification & Status Report prepared by Weston & Sampson, approximately 40 cubic yards of soil impacted with less than 50 ppm of PCBs associated with the hydrant and sewer connections were removed on October 20, 2014 and disposed of as non-TSCA waste at the Turnkey Landfill in Rochester, NH. An additional 40 cubic yards of soil, which had been stockpiled from the installation of the water services, were removed from the Site and disposed of as PCB remediation waste at the Model City Landfill in Model City, NY on October 17, 2014. The report also documented the excavation of an additional 75 cubic yards of soil in the area of the water service connections and from beneath and adjacent to the stockpile which was conducted by Weston & Sampson between November 11, 2014 and December 16, 2014; approximately 70 cubic yards of this material were disposed of as non-TSCA waste at the Turnkey Landfill in Rochester, NH and the remaining 5 cubic yards were disposed of as PCB remediation waste at the Model City Landfill in Model City, NY.

Confirmatory soil testing and further surface soil removal was performed by the CEDB between November and December 2014. Surface soil testing by Weston & Sampson, in areas within and surrounding the incursion area, included the collection of 118 shallow soil samples from within the top 2 feet of soil within grids A20 to A220 and B20 to B200. Fifty of these samples were ultimately removed during the URAM activities described in the previous paragraph. Laboratory analysis of these samples showed persistent concentrations of total PCBs above 1 ppm and in some places exceeding 10 ppm with a maximum concentration of 110 ppm. PCBs were detected in 107 of the 118 soil samples collected. Concentrations of PCBs in 85 of the 107 soil samples where PCBs were detected contained PCB concentrations above the MCP Method 1 S-1 Standard of 1 ppm. The highest PCB concentration was measured in SS-103 (6-12") at 110 ppm. The average

total PCB concentration of the samples collected by Weston & Sampson was 5.9 ppm. A table summarizing these results and a plan showing the location of these samples are included in this report as Appendix D

2.8 Advancement of Foundation Geo-Piers

In November 2014, Lawrenceville, LLC constructed foundation geo-piers for the future hotel. To allow equipment access to the work areas, clean crushed gravel was brought on-site and spread due to the presence of standing water over a large portion of the Site. The pier advancement displaces soil downward, and no soil was relocated to the surface or otherwise generated as part of the geo-pier installation process.

3 SAMPLING PROCEDURES AND SUMMARY OF RECENT ASSESSMENT

3.1 Soil Assessment – Below the Demarcation Fabric (Lower Soil)

On October 27 and 28 and November 7, 2014, CDW conducted a targeted sampling program of those grid areas where over-excavation of utility corridors was needed below the demarcation fabric. Soil samples were collected to obtain at least one sample per each 20 foot by 20 foot grid area affected. The depth of samples varied depending upon the required depth of excavation. A total of 67 soil samples were collected and analyzed for PCBs by the Soxhlet extraction method. Soil samples were collected continuously using direct push drilling equipment and screened with a Photoionization Detector (PID) for Total Organic Volatiles (TOVs). Excess soil generated during soil sampling was stored in a single 55-gallon drum for later off-site disposal. The results showed TOVs ranging from non-detect in most samples to 59 parts per million by volume (ppmv). Table 1 shows results of PID screening. Table 2 lists every grid on the Site, and where applicable, the volume and depth of soil to be excavated below the fabric within each grid. The results of EPA screening data corresponding to the grid areas where soil will be excavated, and the laboratory analytical data obtained from the CDW sampling activities are also included in Table 2.

Figure 2 shows the grid-by-grid PCB sampling results color-coded to display the results within Table 2 based on three categories: TYPE 1 Soil (PCB concentrations ≥ 29 ppm) are shown as red, TYPE 2 Soil (PCB concentrations ≥ 1 ppm but < 29 ppm) are shown as yellow, and TYPE 3 Soil (PCB concentrations < 1 ppm) are shown as green. Based on a review of this pre-characterization data with EPA in the Fall of 2014, it was agreed that soils exhibiting PCB concentrations greater than 29 ppm which require removal from below the demarcation fabric would be transported and disposed of as PCB remediation waste as a conservative measure.

Based upon the preliminary results, CDW advanced additional soil borings on November 7, 2014 to collect composite soil samples for pre-characterization data for off-site disposal. The borings were advanced in specific grid areas where results reported PCBs above 1 ppm but below 50 ppm. The results, summarized in Table 3, were used to develop the soil profile and to gain approval to dispose of the soils as a non-hazardous waste.

3.2 Soil Assessment – Above the Demarcation Fabric (Upper Soil)

On January 6, 2015 and January 7, 2015, CDW was on-site to further investigate the detection of elevated PCBs in the soil above the orange demarcation fabric in samples collected by Weston & Sampson in the Fall of 2014. This investigation included the collection of 24 surficial soil samples (from depths of 6 inches bsg) and the collection of 10 soil samples from depths of 9 to 18 inches bsg; all soil samples were collected from above the orange demarcation fabric. Hand tools including shovels, pick axes, hammer drills, and jack hammers were used to loosen the soil and collect a sample for laboratory analysis from the desired depth. Excess soil generated during soil sampling was returned to the location from which it had been removed. Hand tools were decontaminated between sampling locations by brushing soil off the areas which contacted soil, rinsing these areas with diesel fuel, and then rinsing the contacted areas with methanol. Soil sample locations, shown on Figure 3, were selected in an attempt to spatially distribute locations to obtain data representative of the entire Site with a focus on the soil within the top 2 feet of the surface. Samples were collected from locations where soil was not located beneath the ice. (Frozen standing water typically at least 6 inches deep covered approximately one third of the Site; such areas were primarily located on the northern half of the Site.) Deeper samples (from depths of 9 to 18 inches bsg) were collected in approximately half the sampling locations. Decontamination waste was placed in the 55-gallon drum with the soil generated during the November 2014 assessment activities.

As summarized in Table 4, PCBs were detected in 32 of the 34 soil samples collected from the Site by CDW in January 2015. PCBs were not detected in the samples collected from A-140 (10”) and G-40 (6”); however, low level PCBs (<1 ppm) were detected in each of the soil samples collected from different depths at these locations. Concentrations of PCBs in all other soil samples were above the MCP Method 1 S-1 Standard of 1 ppm. The highest PCB concentration was measured in A-600 (10”) at 71 ppm. The average total PCB concentration of the samples which were collected at 6 inches was 9.5 ppm while the average total PCB concentration of the samples which were collected from between 9 and 18 inches was 11.5 ppm. In the ten locations where two samples were collected, PCB concentrations were fairly similar at varying depths, differing by less than 9 ppm with the exception of the samples collected from A-600, which differed by approximately 68 ppm.

On February 26, 2015, CDW completed a shallow subsurface investigation to fill in data gaps remaining after the January 2015 surficial PCB investigation. This investigation consisted of the collection of 25 surficial soil samples (from depths of 6 inches bsg) and the collection of 25 soil samples from depths of 1 to 3 feet bsg. All soil samples were collected from above the demarcation fabric. A direct push geoprobe drill rig was used to collect samples for laboratory analysis from the desired depths. Soil samples were collected in dedicated 5-foot long, acetate liners. Excess soil generated during soil sampling was returned to the location from which it had been removed. Soil sample locations, shown on Figure 3, were selected in an attempt to spatially distribute locations to obtain data representative of the entire Site with a focus on filling data gaps remaining after the January 2015 surficial PCB investigation. These samples included soils within EPA-constructed utility corridors shown on Figure 4. At each boring location a sample was collected from 6 inches bsg and from approximately half way between the surface and the top of the demarcation fabric at depths of 1 to 3 feet bsg. The soil boring logs from the February 2015 investigations are attached to this report as Appendix F.

As summarized in Table 4, PCBs were detected in 47 of the 50 soil samples collected from the Site by CDW in February 2015. PCBs were not detected in the samples collected from D-440 (18”), F-280 (36”), and H-80 (36”); however, PCBs were detected in each of the soil samples collected from different depths at these locations. Concentrations of PCBs in 42 of the 47 soil samples where PCBs were detected contained PCB concentrations above the MCP Method 1, S-1 Standard of 1 ppm. The highest PCB concentration was measured in E-40 (6”) at260 ppm. The average total PCB concentration of the samples which were collected at 6 inches was 29.7 ppm, while the average total PCB concentration of the samples which were collected from between 1 and 3 feet bsg was 14.4 ppm. PCB concentrations varied considerably with depth. Eighteen of the soil samples collected by CDW in February 2015 were also submitted for analysis of Extractable Petroleum Hydrocarbon (EPH) fractions, Volatile Petroleum Hydrocarbon (VPH) fractions and target analytes, antimony, arsenic, barium, cadmium, chromium, lead, nickel, vanadium, and zinc in order to develop Exposure Point Concentrations (EPCs) for the COCs in the soil located above the demarcation fabric. Of these compounds, only lead and zinc were detected above the MCP Method 1, S-1 Standards (200 ppm for lead and 1,000 ppm for zinc). These data are summarized in Tables 7 and 8.

3.3 Groundwater Assessment

During the advancement of borings in October 2014, two groundwater monitoring wells, DW-1 and DW-2, were installed. Each well was advanced to a depth of 10 feet. The wells were constructed of 8 feet of screen with a 2 foot riser, and finished above grade with a locking well cap. Groundwater was observed at an approximate depth of 2.5 to 3.5 feet bsg. The locations of these wells are shown on Figure 2, and Soil Boring Logs and Monitoring Well Construction Diagrams are attached to this RBC Plan as Appendix F.

On October 30, 2014, the two newly-installed monitoring wells were each sampled once for PCBs by EPA Method 8082, EPH including target PAHs, VPH including target VOCs and dissolved priority pollutant (PP13) metals. DW-2 was also sampled for dissolved lead on December 16, 2014. The results, summarized in Table 5, showed detectable concentrations of several dissolved metals in both wells and EPH and PCBs in one well. With the exception of dissolved lead, none of the detected concentrations exceeded applicable MCP Method 1 Standards. Dissolved lead was not detected in DW-2 during the December 2014 sampling event.

Because DW-1 was destroyed sometime following the October 2014 sampling event, a replacement well, DW-1R, was installed proximal to the location of DW-1 on February 26, 2015. The well was advanced to a depth of 10 feet and was constructed of 8 feet of screen with a 5.5-foot riser, and was finished above grade with a locking well cap.

On March 6, 2015, groundwater samples were collected from two monitoring wells, DW-1R and DW-2. Monitoring wells were gauged using an interface probe and then purged of at least three times the standing water volumes or until the well was purged dry at least three times with a dedicated bailer prior to sampling. Groundwater was observed at an approximate depth of 2.8 to 4.4 feet bsg. NAPL was not detected in either well. Groundwater samples were collected using a dedicated bailer. Groundwater samples were submitted for laboratory analysis of PCBs by EPA Method 8082 (filtered), EPH fractions (filtered), VPH fractions and target analytes, and dissolved antimony, arsenic, barium, cadmium, chromium, lead, nickel, vanadium, and zinc. Metals samples were filtered in the field using dedicated 0.45 µm disposable groundwater filter cartridge; PCB and EPH samples were filtered by the laboratory prior to analysis. CDW attempted to sample additional monitoring wells; however, no other monitoring wells could be located due to the presence of large stockpiles of snow at the Site. As summarized in Table 5, dissolved barium was the only compound detected in the groundwater samples collected in March 2015, at a concentration below the MCP Method 1, GW-2 and GW-3 Standards.

3.4 Gravel Stockpile Assessment

On January 6, 2015, two samples were collected from gravel stockpiles located on the Site. These stockpiles, estimated to contain between 5 and 20 cubic yards of gravel, are believed to consist of excess gravel which was imported to the Site to fill some of the puddles. Approximately 3 inches of gravel were cleared from the gravel stockpiles using hand tools prior to collecting the stockpile samples. As summarized in Table 4, no PCBs were detected in either of the samples collected from the two gravel stockpiles.

3.5 Standing Water Assessment

On January 6, 2015, two standing water samples were collected by breaking the surficial layer of ice with a chisel and fully submerging the sampling jar in the exposed water. Standing water samples were collected from two of the larger puddles on the Site. One of the standing water samples was collected from a puddle on the northwestern portion of the Site, proximal to the location where stockpiles of PCB-impacted soil are known to have been stored following the installation of the demarcation fabric. The other was collected from a puddle on the northeastern portion of the Site to evaluate the concentrations of PCBs in the standing water of the Site at a location distant from the former stockpile locations. The locations of these samples are shown on Figure 3. As summarized in Table 6, PCBs were not detected in either of the filtered standing water samples. PCBs were detected at 0.45 ug/L and 0.48 ug/L in the two unfiltered standing water samples. These concentrations are below the MCP Method 1 GW-2 and GW-3 standards of 5 ug/L and 10 ug/L respectively.

4 HUMAN HEALTH RISK ASSESSMENT & ECOLOGICAL RISK ASSESSMENT

PCBs at concentrations above the prescriptive PCB cleanup standards at 40 CFR § 761.61(a) are proposed to be left in place at the Site under this RBC Plan; therefore, CDW has evaluated the need for a Human Health Risk Assessment and Ecological Risk Assessment for the Site. The need for a Human Health Assessment has been evaluated separately for the soils above the demarcation fabric and the soils below the demarcation fabric; these evaluations are presented within the following section. This evaluation has focused on the contaminant concentrations remaining in the soil at the Site as impact to other media is extremely low and contact with impacted soil is the primary potential exposure pathway at the Site.

4.1 Ecological Evaluation of Risk

Because there are no wetlands or water bodies located within half a mile of the Site and the RBC Plan includes the implementation of an engineered cap in accordance with 40 CFR § 761.61(a)(7), there will be no ecological exposure to the PCBs at the Site following the implementation of the RBC Plan; therefore, CDW has concluded that an Ecological Risk Assessment is not necessary for this RBC Plan.

4.2 Human Health Risk – Below the Demarcation Fabric (Lower Soil)

As discussed in Section 2.5.4, EPA performed a TCRA to excavate contaminated soils from the Site, reducing overall concentrations of PCBs in both soil and groundwater. These activities substantially achieved EPA's established goal to reduce the average remaining concentration of PCBs in soils currently located beneath the demarcation fabric (lower soil) from elevated concentrations to below 100 ppm within the south portion of the Site, with no individual PCB concentration exceeding 50 ppm on the north portion. Final laboratory data show that several locations in the northern portion of the Site had residual concentrations in excess of 50 ppm; however, further soil excavation and disposal as part of the future development on the parcel was expected to be managed under a RBC Plan to further reduce exposure risks, and the goals of the TCRA were determined to have been achieved.

The cleanup activities to be conducted under this RBC Plan beneath the demarcation fabric are limited to the management and disposal of over-excavated soils needed to facilitate the construction of utilities. Soils generated from beneath the demarcation fabric with PCB concentrations greater than 1 ppm will be disposed off-site as described in Section 8.5.2. Potential exposure to the upper soil will be restricted via the construction of an engineered cap, and enforcement of the cap maintenance through the implementation of an AUL as described in Section 8.5.7

As the cleanup goals for the lower soil were both established and achieved by EPA, a Human Health Risk Assessment for the lower soil is not required. However, CDW has compared the current PCB Exposure Point Concentration (EPC) for this soil to an estimated future PCB EPC in order to ensure that the planned removal of certain lower soils will not significantly increase the PCB EPC. In order to calculate the PCB EPCs for the soil below the demarcation fabric, a correction factor was first established for XRF field-screened concentrations measured by EPA. The XRF concentrations were multiplied by a correction factor of 2.1 to obtain adjusted concentrations. This correction factor was calculated by performing a simple linear regression, between the XRF field-screened results and the 10 split samples which were submitted for laboratory analysis by EPA. CDW completed a similar analysis for three additional scenarios: 1) all CDW laboratory data and all EPA laboratory data collected from locations with corresponding

field screening results including the laboratory samples which were non-detect, 2) all CDW laboratory data and all EPA laboratory data collected from locations with corresponding field screening results not including the laboratory samples which were non-detect, and 3) all CDW laboratory data with corresponding field screening results including the laboratory samples which were non-detect. The correction factors obtained for these data sets ranged from 0.42 to 0.94. CDW selected 2.1 as the most accurate correction factor based on the assumption that EPA laboratory sample and field screening sample were a split sample and therefore, the laboratory data obtained from EPA sample more accurately represents the sample which was field screened than the data collected by CDW because of the variability in sample location. Additionally, the 2.1 correction factor was the most conservative correction factor calculated. Field screening results which were non-detect were not included in the data sets utilized to obtain the correction factors. The data utilized to obtain the correction factors and the graphs produced are included in this report as Appendix H.

The current PCB EPC for the lower soil was calculated as the arithmetic average of the total PCBs in 187 adjusted XRF field-screened samples collected by EPA following completion of the TCRA, 10 laboratory samples collected by EPA following the completion of the TCRA, and 67 laboratory samples collected by CDW from below the fabric in October and November 2014. The 10 XRF field-screened samples which were also submitted for laboratory analysis of PCBs were not utilized in the calculation of the current PCB EPC for the lower soil because the laboratory data was deemed to be more accurate and to avoid utilizing data from the same location twice within the EPC calculation. Averaging this data resulted in a current PCB EPC for the lower soil of 11.5 ppm, adjusted using the 2.1 factor to 19.2 ppm. For comparison, CDW also calculated a current PCB EPC for the lower soil utilizing just EPA data; this resulted in an adjusted value of 22.0 indicating that the CDW laboratory data is consistent with EPA laboratory and adjusted field screening data.

The estimated future PCB EPC for the lower soil was calculated using only the data from the soil samples which will remain in place after the proposed soil removal activities. Eighty-three of the 262 samples collected will be removed during these activities. As a result, the estimated future PCB EPC for this soil was calculated as the arithmetic average of the total PCBs in the 169 adjusted XRF field-screened samples collected by EPA following the completion of the TCRA, the 8 laboratory samples collected by EPA following the completion of the TCRA, and the 2 laboratory samples collected by CDW from below the fabric in October and November 2014 which will remain on-site following the proposed soil removal activities. Averaging this data resulted in an estimated future PCB EPC for the lower soil of 20.4 ppm, which is similar to the current PCB EPC of 19.2 ppm, indicating that the proposed soil removal will not significantly change the EPC. Without adjusting the XRF field-screened data, the estimated future PCB EPC for the lower soil is 10 ppm. CDW will calculate an actual future PCB EPC for the lower soil utilizing data collected following the removal of the soil.

4.3 Human Health Risk – Above the Demarcation Fabric (Upper Soil)

The current PCB EPC for the soil above the demarcation fabric (upper soil) was calculated as the arithmetic average of the total PCBs in the 84 shallow soil samples collected by CDW in January 2015 and February 2015 and the 68 shallow soil samples collected by Weston & Sampson between November 2014 and December 2014 which represent soils that remain at the Site. The total PCBs in each of the upper soil samples collected by CDW are presented in Table 4. The total PCBs in each of the samples collected by Weston & Sampson are included in Appendix D. For samples which did not contain detectable concentrations of PCBs, one half of the detection limit for a single PCB compound was utilized in the calculation of the current PCB EPC. Although some of these concentrations are significantly higher than the calculated EPC, due to the apparent random distribution of elevated PCB concentrations in the upper soil, the lack of a point source of the PCBs in the upper soil, the high density of the data, and the relatively small size of the Site, CDW believes that an arithmetic average is appropriate. The current PCB EPC for upper soil was calculated to be 11.1 ppm.

As part of this RBC Plan, approximately 1,700 cubic yards of surplus soil will be excavated for off-site disposal from specific areas. Therefore, the future PCB EPC for the upper soil was calculated as the arithmetic average of the total PCBs in the upper soil samples which will remain at the Site after 1,700 cubic yards of upper soils are removed and disposed of off-site. These samples include 73 of the shallow soil samples collected by CDW in January 2015 and February 2015 and the 60 of the shallow soil samples collected by Weston & Sampson between November 2014 and December 2014. Soil from the following sample locations will be removed from the Site:

Sample ID	Grid Location	Concentration (ppm)	Located Beneath Building
B-100 (6")	B-100	9.8	yes
C-120 (6")	C-120	6.9	yes
C-560 (6")	C-560	150	no
D-100 (6")	D-100	3.4	yes
E-40 (6")	E-40	260	yes
E-40 (18")	E-40	33	yes
E-80 (6")	E-80	8.1	yes
E-120 (6")	E-120	1.2	yes
G-120 (6")	G-120	18	partial
I-80 (6")	I-80	36	no
I-100 (6")	I-100	96	no
S-129 (0-6")	A-140	0.55	yes

Sample ID	Grid Location	Concentration (ppm)	Located Beneath Building
S-130 (0-6")	A-120	2.65	yes
S-131 (0-6")	A-100	17.4	yes
S-132 (0-6")	A-80	6.74	yes
S-139 (0-6")	B-140	11.4	yes
S-140 (0-6")	B-120	3.4	yes
S-141 (0-6")	B-100	28.5	yes
S-142 (0-6")	B-80	10.44	yes

Some of the samples listed in the table above are being removed from the Site due to their location beneath the building and the fact that these soils do not meet the project's structural requirements. For samples which did not contain detectable concentrations of PCBs, one half of the detection limit for a single PCB compound was utilized in the calculation of the future PCB EPC. Although some of these concentrations are significantly higher than the calculated EPC, due to the apparent random distribution of elevated PCB concentrations in the upper soil, the lack of a point source of the PCBs in the upper soil, the high density of the data, and the relatively small size of the Site, CDW believes that an arithmetic average is appropriate. The future PCB EPC for upper soil was calculated to be 7.4 ppm which is considerably lower than the current PCB EPC for upper soil of 11.1 ppm.

The calculated future PCB and other future COCs EPCs for upper soil were entered into the MassDEP Method 3 Shortform for construction worker exposure to soil. The Method 3 Shortforms have been developed by MassDEP to streamline the MCP Method 3 risk assessment process by utilizing recommended, protective exposure assumptions and toxicity information in the Shortforms to calculate risk in certain standard exposure scenarios such as construction worker exposure. The future EPCs for each individual compound were calculated as the arithmetic average concentration for the samples in the upper soil which will remain on Site; for samples which did not contain detectable concentrations of a compound, one half of the detection limit was utilized in the calculation of the future EPCs for each COC. Utilizing a construction worker exposure period of 6 months[1] (182 days) as suggested in the MassDEP 1995 Guidance for Disposal Site Risk Characterization, an Excess Lifetime Cancer Risk of 2.6×10^{-7} and a Hazard Index of 0.38 are obtained utilizing the future PCB EPC and an Excess Lifetime Cancer Risk of 4.0×10^{-7} and a

[1] Potential construction worker exposure to the PCB-contaminated soil during construction will occur for approximately 2 months, which will be mitigated with the use of personnel protective equipment, engineering controls and dust suppression. Approximately 2 months after construction activities are initiated, further construction worker exposures will be eliminated by the placement of a temporary soil cap of at least one foot over the entire Site following excavation and re-grading activities.

Hazard Index of 0.71 are obtained utilizing all future COC EPCs. (The completed Method 3 Shortforms are included as Appendix I.) Potential exposure (current) is limited to construction workers. Potential future exposures are also limited to construction workers with the construction of an engineered cap, and enforcement of cap maintenance requirements through the implementation of an AUL as described in Section 8.5.7. As exposure to the upper soil will be limited to construction workers and the Excess Lifetime Cancer Risk for constructions workers is less than 1 x 10^{-6} and the Hazard Index for constructions workers is less than 1, an acceptable risk level has been achieved for upper soils. The engineered cap will be installed at the Site because bulk PCB remediation waste remains at the Site, which meets the definition of a high occupancy area, at concentrations greater than 1 ppm; additionally, the Method 3 Shortforms for resident and park visitor indicate that the Hazard Index for both of these scenarios, in the absence of a restriction on exposure, would be greater than 1.

5 DATA USABILITY ASSESSMENT

In an effort to evaluate the usability of the data relied upon to formulate the conclusions within this RBC Plan, CDW has performed a data quality assessment. This data quality assessment was limited to the data for PCBs in soil, as PCBs in soil are the primary driver of risk at the Site. Information reviewed included sample custody, field quality control (QC), holding times, surrogate recoveries, method blanks, and laboratory control samples. The data quality has been evaluated separately for the lower and upper soils.

5.1 Lower Soil

The data quality assessment for the lower soils included the 189 adjusted XRF PCB field-screened samples collected by EPA following the completion of the TCRA and the 67 laboratory PBC samples collected by CDW from below the fabric in October and November 2015. CDW was unable to complete a data quality sample on the 10 laboratory PCB samples collected by EPA following the completion of the TCRA because CDW has not been provided with the laboratory reports for these samples. As discussed in Section 4.2, a conservative correction factor of 2.1 has been utilized to adjust the XRF field-screened concentrations to correlate them to laboratory data; therefore the adjusted XRF field-screened concentrations can be relied upon to conservatively estimate risk at the Site. Surrogate recoveries for the laboratory results of the 67 CDW samples were within method parameters, with the exception of 21 samples which did not have surrogate recovery available due to sample dilution below the surrogate reporting limits. All 21 samples were reported as having a high concentration of PCBs. Samples in which the surrogate recoveries were not available are generally samples that will be removed under the RBC Plan. Three samples (A220 (4'-5'), A280 (4'-5'), and C260 (5'-6')) were diluted by a factor of 5 as part of the standard

procedure; however, no PCBs were detected in these samples and the detection limits for the individual Aroclor compounds were below 1 ppm. The matrix spike and spike duplicate recoveries were biased high in the batch samples associated with 40 of the 67 CDW samples due to contribution of other Aroclors present in the source sample. However, results of the duplicate matrix spike samples in comparison to their associated primary samples indicated that the relative percent differences (RPDs) were all within the limits of 50% allowed by the data acceptance criteria for all duplicate samples. Qualifications associated with incompletely resolved Aroclors or sample fingerprint which do not exactly match the standard were noted for several of the CDW samples; however, these qualifications have little effect on the reliability of the data for the purposes of this RBC Plan as Aroclors with the closest matching pattern/standard were reported and this RBC Plan evaluated total PCBs. In general, the lower soil samples collected conform to the QA/QC requirements of the analytical method and are suitable for use in the risk characterization process.

The lower soil data are considered qualitatively representative based on historic sampling data. Although a grid pattern in conformance with 40 CFR 761.292(h) and the May 1986 *"Field Manual for Grid Sampling of PCB Spill Sites to Verify Cleanup*" was not utilized at the Site, the post-removal sampling plan for the lower soil was developed and executed by EPA. All sampling of the lower soils conducted by CDW was conducted with the purpose of characterizing soil to be removed or managed to facilitate redevelopment of the Site. Lower soil samples collected by CDW were packed on ice and were accompanied by a chain of custody from the time of sample collection to the time of sample delivery. No method holding times were exceeded for respective analyses, and all data packages were reviewed with respect to both MassDEP and EPA method protocols.

5.2 Upper Soil

The data quality assessment for the upper soils included the 84 shallow soil samples collected by CDW in January 2015 and February 2015 and the 68 shallow soil samples collected by Weston & Sampson between November 2014 and December 2014 which still remain at the Site. Surrogate recoveries for the laboratory results of 36 of the 84 CDW samples and 54 of the 68 Weston & Sampson samples were within method parameters. The remaining 48 CDW samples and 14 Weston & Sampson samples did not have surrogate recovery available due to sample dilution below the surrogate reporting limits; all of these of samples had concentration of total PCBs greater than 2.5 ppm. Although a large percentage of the samples do not have surrogate recoveries available, CDW believes that these qualifications have little effect on the reliability of the data for the purposes of this RBC Plan due to the lack of surrogate recovery issues in those samples with available surrogate recoveries and the large number of samples utilized in the calculation of the PCB EPC for the upper soil. Four CDW samples (A140 (10"), D440 (1.5'), A280 (4'-5'), F280 (3') and H80 (3')) and 7 Weston & Sampson samples (SS-110 (6-12 in), SS-127 (0-6"), SS-127 (18-24"), SS-130 (18-24"), SS-133 (0-6"), SS-133 (18-24"), and SS124 (18-24")) were diluted by a

factor of 5 or 20 as part of the standard procedure; however, no PCBs were detected in these samples and the detection limits for the individual Aroclor compounds were below 1 ppm. The matrix spike and spike duplicate recoveries were biased high in the batch samples associated with 56 of the 84 CDW samples and 61 of the 68 Weston & Sampson samples due to contribution of other Aroclors present in the source sample. However, results of the duplicate matrix spike samples in comparison to their associated primary samples indicated that the RPDs of all of the CDW samples with high-biased spike recoveries and 33 of the samples collected by Weston & Sampson with high-biased spike recoveries were within the limits of 50% allowed by the data acceptance criteria. The remaining 26 samples collected by Weston & Sampson with high-biased spike recoveries had RPDs above the 50% limits. These samples have reduced precision; however, CDW believes that this qualification has little effect on the reliability of the data for the purposes of this RBC Plan due to the large number of samples utilized in the calculation of the PCB EPC for the upper soil. Qualifications associated with incompletely resolved Aroclors or sample fingerprint which do not exactly match the standard were noted for several of the upper soil samples; however, these qualifications have little effect on the reliability of the data for the purposes of this RBC Plan as Aroclors with the closest matching pattern/standard were reported and this RBC Plan evaluated total PCBs. One sample collected by CDW and 3 samples collected by Weston & Sampson were confirmed using a dissimilar column; the higher result was reported resulting in a data which may be biased high, but would be conservatively health protective. In general, the upper soil samples collected conform to the QA/QC requirements of the analytical method and are suitable for use in the risk characterization process.

The upper soil data are considered qualitatively representative based on historic sampling data. Although a grid pattern in conformance with 40 CFR 761.292(h) and the May 1986 *"Field Manual for Grid Sampling of PCB Spill Sites to Verify Cleanup*" was not utilized at the Site, the sampling plan completed by CDW for the upper soil was discussed with and acceptable to EPA at a meeting in January 2015. Upper soil samples collected by CDW were packed on ice and were accompanied by a chain of custody from the time of sample collection to the time of sample delivery. No method holding times were exceeded for respective analyses, and all data packages were reviewed with respect to both MassDEP and EPA method protocols.

6 COMPLIANCE WITH FEDERAL AND STATE REGULATORY STANDARDS

The following is a brief discussion of how compliance with federal and state standards will be met during implementation of the activities under this RBC Plan.

6.1 Federal Standards

Compliance with the federal regulations for PCBs, found in 40 CFR Part 761, will be achieved under the provisions of 40 CFR § 761.61(c). This Plan serves as the written application to EPA for the risk-based disposal approval required thereunder. Information required under the notification and certification requirements in 40 CFR § 761.61(a)(3) is included herein. No cleanup activities as described in this RBC Plan will be performed until written approval is received from EPA. At the completion of the activities conducted under this RBC Plan, such activities will be documented in a RBC Plan Completion Report.

6.2 State Standards

The work described herein is also being implemented in accordance with the provisions of the MCP, 310 CMR 40.0000, and will be conducted under a Phase IV Remedy Implementation Plan (RIP) per 310 CMR 40.0870. Under the MCP, the PCB Method 1 cleanup standard for the S-1 category soil is 1 ppm. However, the MCP provides for an alternative to meeting prescribed Method 1 cleanup standards via a site-specific Method 3 Risk Characterization. The site-specific Method 3 may take into account limited use of the Site if exposure is eliminated through establishment of an AUL. The proposed cleanup for the Site will include the establishment of an AUL which will include the construction and enforcement of a permanent cap across the Site as well as restrictions on future uses of the Site. As a result, exposure to the upper soil at the Site will be limited to emergency utility workers and construction workers, and exposure to lower soil will only be permitted in accordance with a Soil Management Plan and a Health and Safety Plan (HASP). Following the completion of the Phase IV RIP, achievement of a condition of No Significant Risk and a Permanent Solution will be documented in a Permanent Solution Statement with Conditions to be filed with MassDEP.

7 EVALUATION OF PCB CLEANUP ALTERNATIVES

According to the July 2013 Revised Phase III RAP prepared by Weston & Sampson, Weston & Sampson prepared and submitted a draft Phase III RAP to EPA and MassDEP in November 2012 as part of ongoing discussions regarding site redevelopment and potential additional funding sources for remediation. The Revised III RAP also stated that in January 2013, based on the magnitude and extent of contamination, overall costs and proposed redevelopment of the Site, EPA and MassDEP made a recommendation for the most feasible alternative for the Site. The selected alternative which was presented in the July 2013 Revised Phase III RAP included the excavation and off-site disposal of up to approximately 5,700 cubic yards of subsurface soil, 100 cubic yards of concrete and 690 cubic yards of pavement, with final capping and the implementation of institutional controls. The soil removal was intended to remove the majority of the significantly PCB-impacted materials, and to substantially reduce the total volume and mass of PCBs at the Site. In addition, the completion of this alternative would reduce the site-wide average concentration of PCBs remaining in shallow and deep soil, support a Permanent Solution for the Site in accordance with the MCP, and enable the future redevelopment of the Site.

EPA implemented the selected alternative as a TCRA during 2013 and 2014, which resulted in a reduction of overall concentrations of PCBs at the Site. EPA selected a risk-based remedy under 40 CFR § 761.61(a) and (c) because it determined that the unrestricted use concentration of 1 ppm under the performance-based procedures of 40 CFR § 761.61(b) could not be achieved.

Residual PCBs continue to be present within soils at the Site, between the current surface and the final depth of EPA's excavation (approximately 7-8 feet) below existing grade at concentrations exceeding 1 ppm. This project is an extension of the prior removal action, and a detailed alternatives analysis is not warranted at this time. In addition, the No Further Action alternative is not contemplated due to the extensive work already completed to advance the project towards redevelopment.

8 CLEANUP PLAN

8.1 Plan Objectives

The objectives of the work to be undertaken pursuant to this RBC Plan are to properly excavate and manage specific soils in the course of the construction of the hotel, to reduce short-term exposure risks to PCB-contaminated soil associated with construction, to reduce or eliminate long-term exposure risks to PCB-contaminated soil with the construction and maintenance of an engineered cap, and to collect additional soil data at the Site to support such purposes. Through the collective implementation of this plan, both state and federal requirements will be met and final regulatory closure will be achieved.

8.2 Party Conducting Cleanup

Party Conducting Cleanup:	Lawrenceville, LLC (developer)
Contact:	Mark R. Stebbins
Address:	1359 Hooksett Rd. Hooksett, NH 03106
Party Conducting Cleanup:	Chelsea Economic Development Board (owner)
Contact:	Richard Pantano, Chair, Economic Development Board
Address:	Chelsea City Hall, 500 Broadway, Chelsea, MA 02150

The parcel is currently owned by the CEDB; however, Lawrenceville, LLC intends to purchase the property prior to completion of the PCB cleanup and disposal activities described in this RBC Plan. The work conducted under the RBC Plan will be performed by contractors working under a general contractor (Construction Contractor) retained by Lawrenceville, LLC. The developer will separately retain CDW to conduct various environmental-specific activities, including on-site oversight of all excavation, dust monitoring, cap construction, soil sampling, and documentation of these activities.

8.3 Groundwater Evaluation

Groundwater sampling conducted prior to and following the completion of the TCRA has demonstrated that groundwater at the Site is not significantly impacted by PCBs or other compounds of concern. Groundwater sampling data collected by Weston & Sampson and corresponding monitoring well locations are included in Appendix G; groundwater sampling data for samples collected by CDW are summarized in Table 5. As previously discussed, two monitoring wells, DW-1 and DW-2, located on the south central and north central portions of the Site, were sampled by CDW in October 2014 and March 2015. PCBs were detected in DW-1, on

the southern portion of the Site, at a concentration of 2.32 ug/L in October 2014, but were not detected in DW-1 in March 2015 or in DW-2 in October 2014 and March 2015. Groundwater sampling conducted by Weston & Sampson of 15 monitoring wells in February 2012, prior to the TCRA, indicated that total PCB concentrations at that time did not exceed 2.5 ug/L, despite the presence of total PCB concentrations in the soil as high as 51,800 ppm. These concentrations are below the applicable MCP Method 1 Standard of 5 ug/L. The total PCB concentrations detected in groundwater in February 2012 had decreased significantly from PCB concentrations measured from 1999 through 2007, which were documented as high as 418 ug/L. The highest concentrations at the Site were formerly detected in the central southern portion of the Site, in the vicinity of DW-1. Given the significant decrease in the concentrations of PCBs in the soil following the TCRA, the low levels of PCBs documented in the groundwater across the Site prior to the TCRA, and the low to non-detect concentrations detected in the groundwater following completion of the TCRA, the data indicates that PCB migration via groundwater is not likely at or from the Site. Therefore, continued regular groundwater sampling for PCBs is no longer necessary and will not be incorporated into the LTMMP.

8.4 Risk-Based Site Cleanup Remedial Goals

Groundwater sampling conducted since 2012 by CDW and Weston & Sampson has demonstrated that groundwater at the Site is not significantly impacted by PCBs. The low to non-detected concentrations in the groundwater both prior to and following the completion of the TCRA, indicate that PCBs in groundwater do not warrant further assessment or remediation.

The TCRA substantially reduced the PCB concentrations in soils throughout the Site. The goals for this RBC Plan are as follows:

- Conduct additional soil removal below and above the demarcation fabric, with verification sampling beneath the fabric, to enable the installation of utilities for the future development;
- Manage and control surface soils during construction;
- Construct a suitable barrier to eliminate a route of exposure to PCB-contaminated soils; and
- Implement institutional controls (AUL) to maintain the long-term viability of the engineered cap.

8.5 Plan Implementation

The construction of approximately 22,000 square feet of new building space and the installation of associated utilities, support structures, etc., will result in soil excavation and disposal. To facilitate construction, certain soils will be excavated and managed from below the demarcation fabric according to the pre-characterization sampling results. Additionally, some soil from above the demarcation fabric will require re-grading to construct an effective engineered cap. Building

construction activities are expected to generate approximately 1,200 cubic yards of PCB-impacted soil from below the demarcation fabric, of which 400 cubic yards will need to be disposed off-site, and approximately 1,700 cubic yards from above the fabric, all of which will need to be disposed off-site. These soils have been found to contain varying concentrations of PCBs between 1 and 260 ppm, and will be managed and disposed in accordance with the procedures described in the following sections.

Soils generated during excavation and construction activities will be managed within the Site boundaries in specific designated storage areas. Due to the presence of PCB-contaminated soil in certain areas that will be disturbed, proper handling and storage techniques for all excavated soils, as detailed below, will be followed in order to minimize the potential for human exposure with the contaminated materials during construction, and prevent the release of PCBs to air and/or uncontaminated soil or groundwater media.

The Construction Contractor will perform soil management in accordance with this RBC Plan, its site-specific HASP, and applicable contract specifications. Managed soil will be handled to minimize excessive movement and kept covered to reduce the potential for air emissions. The Construction Contractor shall not expand the excavation area to remove localized areas of contaminated soil unless it is needed for construction purposes. Managed material will be reused on the Site if possible and if structurally suitable, as directed by the geotechnical engineer.

Off-site transportation of the excavated PCB remediation waste will be conducted by trained personnel only, and will require stringent procedural and administrative controls for management and tracking.

8.5.1 Site Security

The Site currently consists of an elongated vacant, unpaved parcel of land. The work site will be located within a fenced-in secure construction zone, which will be off limits to the general public. Each excavation area that penetrates PCB-contaminated soil will be further designated an exclusion zone where only assigned Occupational Safety and Health Administration (OSHA) certified and protected workers will be allowed. These areas will be further marked out with caution tape and temporary fencing to discourage entry. Prior to initiation of work, the fence surrounding the work site will be examined to ensure that unauthorized personnel are prohibited from entering.

8.5.2 Soil Management

Construction activities will result in the management of PCB-contaminated soil from above and below the demarcation fabric. An evaluation of the COC EPCs present within the upper soil, discussed in Section 4.3, has concluded that upper soils pose an insignificant risk and can safely remain at the Site beneath an engineered cap as described in Section 8.5.7; however, removal of approximately 1,700 cubic yard of the upper soil is required for construction of the engineered cap and will further reduce the level of risk at the Site. The following is a summary of the estimated soil volumes that will be excavated and how each type will be managed and/or disposed:

TYPE 1 Soil (off-site disposal as TSCA waste):	
Lower soils with PCB concentrations ≥ 29* ppm :	100 CY lower soil
Upper soils with PCB concentrations ≥ 50 ppm	100 CY upper soil
TYPE 2 Soil (off-site disposal at RCRA Subtitle D facility):	
Lower soils with PCB concentrations ≥ 1 ppm but < 29 ppm	300 CY lower soil
Upper soils with PCB concentrations < 50 ppm	1,600 CY upper soil
TYPE 3 Soil (relocate within landscaped portion of engineered cap):	
Lower soils with PCB concentrations <1 ppm:	700 CY lower soil

*Based on variability in field screening results, the designation as a TSCA waste of soils equal to or greater than 29 ppm is used as a conservative measure for soil located beneath the fabric.

Site Plans depicting the proposed construction and the areas where soil will be generated are included as Figure 2 (lower soil) and Figure 5 (upper soil). TYPE 1 Soil will be shipped for off-site disposal as TSCA waste under hazardous waste manifest within 3 weeks of generation. TYPE 2 Soil will be loaded and transported as a non-hazardous waste under a BOL to a RCRA Subtitle D lined landfill. TYPE 3 Soil will be sampled at intervals of approximately 1 sample per every 50 cubic yards to confirm that total PCB concentrations of <1ppm have been achieved prior to utilizing these soils within the engineered cap for the landscaped areas. If any of the samples indicate that total PCB concentrations exceed 1 ppm, such soil will be disposed off-site as TYPE 1 or TYPE 2 Soil as appropriated based on the detected total PCB concentrations.

Soil management and Site development will be conducted in the following sequence:

1. Excavate, stockpile, and dispose off-site of approximately 1,700 cubic yards of upper soil
2. Excavate and stockpile approximately 1,100 cubic yards of lower soil and install corresponding utilities and foundation elements
3. Dispose off-site of approximately of approximately 100 cubic yards of TYPE 1 upper soil and 300 cubic yards of TYPE 2 upper soil

4. Regrade the Site to the bottom of the engineered cap elevations
5. Install any remaining foundation elements
6. Construct a temporary cap of at least 1 foot of clean sub base material (utilize approximately 700 cubic yard of TYPE 3 soil to construct temporary cap in landscaped areas)
7. Complete building construction
8. Complete installation of engineered cap

8.5.3 Storage Areas

Storage areas will be created to facilitate the proper management and staging of soil from the excavation areas. The TYPE 1 and TYPE 2 storage areas are shown on Figure 2. TYPE 1, TYPE 2, and TYPE 3 soil will be separated by sufficient distance and physical barriers such as temporary construction fencing and signage and supervision will be maintained to prevent mixing and cross-contamination. Soils designated as TYPE 1 and TYPE 2 will be separately stockpiled on a temporary basis on top of a double layer of polyethylene sheeting, and covered with minimum 6 mil polyethylene sheeting, and protected and contained within a line of hay bales to prevent erosion. Alternatively TYPE 1 and TYPE 2 Soil may be placed into separate roll-off containers.

When not being moved or added to, all stored soil will be covered with minimum 6 mil polyethylene sheeting. Access to contaminated stockpiled soil will be restricted to authorized personnel for adding to or removing soils. Trucks used to transport soils across the Site will follow a predetermined path across the Site to eliminate the potential for cross-contamination. Nearby stormwater catch basins, trenches, sumps or other drainage structures will be protected with hay bales and silt fencing.

8.5.4 Contingency Plan

As this RBC Plan is being implemented to manage soils generated during the installation of utilities and support structures during building construction and not to conduct additional remediation of the Site, a contingency plan is not necessary. Adequate assessment of the soils which require management has been conducted to properly characterize soils for off-site disposal or on-site relocation.

8.5.5 Dust Control

During implementation of this alternative, short-term exposure to contaminated soil could occur primarily through dust generation while performing necessary excavation and materials handling tasks. To mitigate potential exposure by site workers and/or off-site receptors, engineering controls will be implemented to govern any activity that might disturb or expose contaminated soils.

Ambient air monitoring and dust suppression will occur throughout excavation activities to minimize potential off-site migration of airborne contaminants.

To mitigate dust emissions, the Construction Contractor will utilize the following specific measures:

- Wetting agents will be used regularly to control and suppress dust that may come from exposed excavations, chipping, sawing, etc.
- Gravel tracking pads will be provided at all construction entrances.
- All trucks that enter the site and drive on non-gravel surfaces will be subject to wheel cleaning as the vehicle exits the site. This will entail dry removal techniques and/or hosing down the truck wheels while the truck is on the gravel tracking pad, just before the truck exits the site. If trucks and/or equipment are operating within the PCB-impacted areas other than being parked on a designated decontamination pad for loading and transport, they will be required to undergo a dry removal and testing or a double wash-rinse procedure as outlined in Section 8.5.11 below.
- Short duration stockpiling of soil (intended for immediate reuse) will be stabilized, and surrounded by erosion controls.
- No storage of construction debris will be allowed on-site, other than in dumpsters.
- Construction practices will be monitored to ensure that unnecessary transfers and mechanical disturbances of loose materials are minimized and that any emissions of dust are minimal.
- All soils, when transported upon public roadways, shall be covered to minimize fugitive dust, and where necessary, truck tire and undercarriage washing shall be employed to minimize tracking of soils onto public roadways.

8.5.6 Groundwater/Construction Dewatering

Standing water and groundwater will require management as remedial wastewater during the excavation activities proposed under the RBC Plan. Standing water typically at least 6 inches deep currently covers approximately one third of the Site, and groundwater is estimated to be located at depths between 2 and 5 feet bsg. As discussed in Section 3.5, sampling of the standing water in two locations in January 2015 indicated that PCBs were not detected in either of the filtered standing water samples, but PCBs were detected at 0.45 ug/L and 0.48 ug/L in the two unfiltered standing water samples. As discussed in Section 3.3 and Section 8.3, concentrations of PCBs in the groundwater have decreased significantly since 2007, were all below applicable Method 1 Standards in 2014, and were non-detect in March 2015. If minimal dewatering of standing water and groundwater is required, discharge of this remedial wastewater will be conducted to an on-site impoundment, upgradient of the extraction area in accordance with 310 CMR 40.0045. A

groundwater contour map prepared by Weston & Sampson in April 2012 which shows the groundwater flow direction at the Site is included in Appendix G.

If groundwater discharge at the Site results in the erosion of or otherwise impairs the functioning of the surficial and subsurface soils, infiltrates underground utilities, building interiors or subsurface structures, results in groundwater mounding within two feet of the ground surface or results in flooding of or breakout to the groundwater surface, direct discharge to the ground surface will be ceased and groundwater will instead be collected in holding tanks. Groundwater mounding will be evaluated by gauging the two monitoring wells located closest to the point of discharge at least once per hour during the first 8 hours of discharge. If groundwater mounding within 2.5 feet of the ground surface is not observed after the first 8 hours of discharge, gauging frequency may be reduced to once per day assuming that the discharge rate is not increased.

If the employment of holding tanks become necessary, and less than 40,000 gallons of groundwater are accumulated within holding tanks as a result of dewatering activities, the groundwater will slowly be released to the ground surface within a bermed area at rates which do not result in the erosion of or otherwise impairs the functioning of the surficial and subsurface soils, infiltrates underground utilities, building interiors or subsurface structures, results in groundwater mounding within two feet of the ground surface or results in flooding of or breakout to the groundwater surface. Alternatively, if slow discharge to the ground surface is not feasible, remedial wastewater may be transported off-site for off-site disposal at an appropriate wastewater disposal facility based on the results of testing of the contents of the holding tank.

If greater than 40,000 gallons of groundwater are accumulated within holding tanks as a result of dewatering activities, the collected stormwater will be sent through a carbon treatment system prior to being discharged to storm drains within Beech Street. The discharge and testing requirements will be regulated under a National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP), and City of Chelsea pre-approval, to be obtained prior to discharge.

8.5.7 Engineered Cap Construction, Monitoring & Maintenance

An engineered cap constructed in accordance with 40 CFR § 761.61(a)(7) will be utilized at the Site to prevent human exposure to remaining PCB-impacted soil and to minimize water infiltration and erosion. As shown on the Site Cap Plan in Appendix J, the majority of the Site will be covered with the concrete foundation of the building, associated asphalt parking areas, and concrete walkways. A small percentage of the Site will be landscaped. The final engineered cap will be a minimum of 22 inches of capping material consisting of clean fill and at least 4 inches of asphalt or concrete in all non-landscaped areas. A 10 millimeter vapor barrier and clean structural fill material for a total cap thickness of at least 22 inches will also be installed directly beneath the concrete slab of the

building. The engineered cap in landscaped areas will consist of a minimum of 3 feet of clean fill; partially using 700 cubic yards of TYPE 3 soil within the lower zone (approximately 1.5 feet) of these areas. Specifications for the engineered cap, a Site Cap Plan, Site Plans and Profiles, and a statement of financial assurance for the engineered cap are included in Appendix J. Initial utility work and grading will occur on the current surface. This will be followed by the placement of clean fill of sufficient depth to reduce exposures of construction workers on-site during the remainder of the project, and to prepare the surface for the final asphalt pavement cap.

The engineered cap shall be maintained in perpetuity by the owner of the property. Maintenance of the cap in conjunction with site activity and use restrictions shall be enforced through the implementation of an AUL on the Site. Compliance with the AUL's terms as to ongoing maintenance of the engineered cap and site activity and use controls will render any remaining PCBs and other COCs in site soils an acceptable risk level. In satisfaction of 40 CFR § 761.61(a)(8)(i)(A), the AUL shall be recorded with the Registry of Deeds within 60 days of the completion of the construction of the cap. In accordance with 40 CFR § 761.61(a)(8)(i)(B), a certification signed by the owner stating that the notation specified in 40 CFR § 761.61(a)(8)(i)(A) has been recorded shall be submitted to the EPA Regional Administrator. The AUL will serve to notify any potential purchaser of the property: (1) that the land has been used for PCB remediation waste disposal; (2) of the existence of the cap and the requirement to maintain the cap; and (3) the applicable cleanup levels left at the Site under the cap. The AUL will also stipulate that a visual inspection of the cap shall be conducted minimally twice per year, and that repair of any breach, including vegetative growth, which could impair the integrity of the cap, shall be initiated within 72 hours of discovery.

8.5.8 Long Term Monitoring & Maintenance Plan

A LTMMP has been prepared to meet Condition #4 of the TSCA § 761.61(c) Determination. LTMMP is included as Appendix K of this plan and the TSCA § 761.61(c) Determination is included as Appendix B. In accordance with Condition #4 of the TSCA § 761.61(c) Determination. The Plan includes the following:

1. a description of the activities that will be conducted, including routine ground surface maintenance activities; groundwater quality monitoring locations, as applicable; sampling protocols, sampling frequency, and analytical criteria; and reporting requirements.

2. a communications component which details where the maintenance and monitoring information is maintained and communicated, if requested, to interested stakeholders; and,

Activities required under the LTMMP shall be conducted until such time that EPA determines, in writing, that such activities are no longer necessary. As discussed previously in this plan, groundwater quality monitoring is not applicable at the Site and has not been included within the LTMMP. The use restrictions for the property and the long-term monitoring and maintenance requirements on the areas addressed by the LTMMP will be described in the deed notice in the form of an AUL. This will include any restrictions on future development or activity on the Site to prevent exposure to subsurface soils that are contaminated with PCBs.

8.5.9 Health and Safety Plan

The Construction Contractor shall ensure that a worker HASP is implemented as required by OSHA under the Occupational Safety and Health Act of 1970, 29 U.S.C. § 651, as amended, and 29 CFR 1910.120(e), as well as any other applicable federal, state and local law. The site work involving PCB-contaminated soils will be performed by OSHA 40-hour HAZWOPER trained workers. The HASP will include the following information:

- Site Description and History
- Qualifications of Key Site Safety Personnel
- Safety and Health Hazard Assessment
- Education and Training
- Personal Protective Equipment
- Environmental Air Monitoring
- Standard Operating Procedures
- Site Control Measures
- Soil Management
- Decontamination Procedures
- Logs, Reports and Recordkeeping
- Heat and Cold Stress Monitoring
- Emergency Response Plan
- Spill Containment Plan

8.5.10 Air Monitoring

As required under both federal and state regulations, the HASP shall include the institution of air monitoring activities, as necessary, to protect the public from exposure to gases and airborne particulates. The primary anticipated hazard at the Site is airborne particulates as fugitive dust. CDW has designed and developed an Air Monitoring Plan necessary to characterize and quantify airborne contaminants that may be present during work activities. These air monitoring strategies

and protocols, presented below, address appropriate air monitoring in work zones and at the perimeter of the work zones.

Work Zone and Work Zone Perimeter Monitoring

Air monitoring will address airborne soil particulates as fugitive dust during sampling activities. VOCs are not anticipated but will be included in the air monitoring program in the event that they are encountered. Contaminant specific action levels for soil particulates and VOCs as fugitive dust will be established. The action levels for the engineering control measures will be based on work zone air monitoring. Action levels for the upgrade or downgrade of worker personal protective equipment and gases and airborne particulates within the work zone will be based upon information published by the American Conference of Governmental Industrial Hygienists (ACGIH), OSHA, and EPA. Action levels will be based upon established Permissible OSHA Exposure Limit and ACGIH Threshold Limit Values. The action levels will be established for each work activity and contaminant present. The physical boundary of the work zone perimeter will be defined as the perimeter of the Site.

Qualified personnel will monitor the ambient air for soil particles as fugitive dust at downwind locations of the excavation area. Monitoring will be performed while intrusive work activities are occurring, at a frequency of one reading every fifteen minutes. Monitoring will be conducted using a real time dust monitor (Miniram Model PDM3 or similar), capable of measuring and recording a minimum dust particle concentration of 50 ug/m^3 with a probability of detection of 95 percent. Additionally, CDW will periodically monitor ambient air within the work zone using a PID calibrated to an isobutylene standard. If warranted based upon visual observation, perimeter dust monitoring will be conducted periodically, to measure particulates that could become airborne in areas of the Site where contamination levels could create potentially unhealthy exposure to humans.

Action Levels

Action levels for work activities will be based on the observed air contaminant concentrations for the implementation of dust suppression measures and other engineering control measures to protect construction workers from the release of fugitive dust, exposure route of the materials, and sound personal protection practices. In order to determine the toxic particulate concentration which would be associated with a measured airborne dust level, the following calculation is made:

$$X\ (\mu g/m^3\ dust) = \frac{Air\ Std.for\ Contaminant\ (\mu g/m^3) * CF\ of\ 10^6 (mg/kg)}{Soil\ Conc.of\ Contaminant\ (mg/kg)}$$

This calculation assumes uniform distribution of the contaminant in soil and that the ratio in soil will be the same as the airborne dust. The solution to the equation gives the total airborne dust

concentration which would result in contaminant concentration at the PEL (or TLV, or AAL, or NAAQS, etc.).

An air standard of 0.11 ug/m^3, as established from the GE Hudson River Superfund Site, was conservatively utilized; along with the maximum on-site PCB concentration of 260 ppm. The resultant concentration is a PM-10 value of 423 ug/m^3.

The Site Safety Health Officer (SSHO) will implement vapor control and/or dust suppression measures immediately upon exceeding half of the action level. The SSHO will then notify appropriate on-site personnel within two hours of such an exceedance of half of the action level. The SSHO will temporarily cease intrusive activities if, following implementation of vapor control and/or dust suppression measures, two consecutive readings indicates a continued exceedance of the action level. Engineering controls, vapor control and dust suppression measures, which may be employed during the work include, but are not limited to, the application of water as a dust suppressant and the placement of polyethylene tarpaulins and/or synthetic fabrics.

If PID levels greater than 10 ppmv are detected, mitigating measures may be needed to protect human health such as temporary evacuation of VOCs from work areas.

It is not anticipated that contamination which requires the use of Level C protection will be encountered during this work. If Level C protection is needed, work will cease and the project manager will be required to reevaluate and modify the HASP.

8.5.11 Decontamination

Construction equipment and other moveable equipment that come into contact with PCB-contaminated soils ≥ 29 ppm will be decontaminated using the Double Wash/Rinse Method as outlined in 40 CFR 761 Subpart S. This procedure is utilized to quickly and effectively remove PCBs on surfaces. The double-wash-rinse procedure involves several wash-rinse steps, including an initial water/detergent or solvent wash to clean the affected surfaces, a potable water rinse to remove residuals left from the initial wash, a solvent wash to decontaminate PCBs, and a final solvent rinse to clean and rinse the surface. As with other decontamination procedures described by the TSCA PCB regulations, a solvent meeting the performance-oriented decontamination fluid is required.

Personal Protective Equipment (PPE) will be used at all times when working within the PCB-impacted areas. It is anticipated that Level D protection will be employed, with modification made as deemed necessary by the SSHO upon collecting on-site screening data. A proper worker decontamination corridor will be established as part of the Site access and control. Personnel will

undergo decontamination procedures intended to eliminate the potential for transfer of contaminants of concern outside of the area of concern prior to exiting the exclusion zone.

All PPE and other decontamination waste shall be managed in accordance with 40 CFR 761.79(g). All PCB waste, excluding decontamination wastes, shall be properly stored in accordance with 40 CFR 761.65 and marked in accordance with 40 CFR 761.40 while being managed on-site.

8.5.12 PCB Remediation Waste and Waste Management

Standing water and groundwater will require management as remedial wastewater during the excavation activities proposed under the RBC Plan. If feasible, discharge of this remedial wastewater will be conducted to the ground surface on-site, upgradient of the extraction area in accordance with 310 CMR 40.0045. If upgradient discharge to the ground surface is infeasible due to any of the reasons discussed in Section 8.5.6, one of the alternative methods of management discussed in Section 8.5.6 will be employed. Any solid treatment waste generated during dewatering activities, such as containerized filtration media or sediments, will be disposed of as TSCA waste under a hazardous waste manifest.

Soils requiring off-site disposal must be transported to facilities that are licensed, permitted, or approved to accept such materials by appropriate federal, state or local authorities. Soils which meet the criteria defining a listed or characteristic hazardous waste (TYPE 1 Soil) shall, when transported from a disposal site, comply with the requirements of 310 CMR 30.000. PCB remediation waste soils with concentrations of PCBs equal to or below 29 ppm which are excavated and transported off-site (TYPE 2 Soil) will go to an out of state landfill that can accept PCB remediation waste with concentrations of PCBs below 50 ppm. TYPE 1 Soil will be shipped for off-site disposal as TSCA waste under hazardous waste manifest within 3 weeks of generation. TYPE 2 Soil will be loaded and transported as a non-hazardous waste under a BOL to a RCRA Subtitle D lined landfill.

8.6 Implementation Schedule

Implementation of the RBC Plan is tentatively scheduled to begin in May 2015, but is contingent upon the written approval by EPA. The soil removal activities described in this RBC Plan are expected to take 2 months to complete. A temporary cap of at least 1 foot of clean soil/gravel will be placed across the Site to minimize construction worker exposure to the PCB-contaminated soil after initial site work for construction of the hotel. This temporary cap is expected to be installed within 3 months of the initiation of construction activities. The building foundation is scheduled to be completed within 3 months of the initiation of construction activities. The landscaped and paved portions of the cap are expected to be completed approximately 12 months after construction

activities are initiated. The AUL will be recorded with the Registry of Deeds within 60 days of the completion of final cap construction.

9 CERTIFICATION OF FILE LOCATION

The written certification required by 40 CFR § 761.61(a)(3)(i)(E) that all sampling plans, sample collection procedures, sample preparation procedures, extraction procedures, and instrumental/chemical analysis procedures used to assess or characterize the PCB contamination at the Site, are on file at the location designated in the certificate, and are available for EPA inspection has been signed by the owner of the property where the Site is located and the party conducting the cleanup. These signed certifications are attached to this RBC Plan as Appendix L.

10 SAMPLING QA/QC PLAN

10.1 Sampling Frequency

10.1.1 Soil Screening

Based on prior site work and recent sampling, contaminated soil of varying concentrations is present at the Site. CDW will be on-site during all excavation activities to conduct soil field screening using a PID for total VOCs. Visual and olfactory indications of contamination will also be used to identify and segregate, if needed, those soils exhibiting characteristics inconsistent with existing laboratory data. Field screening for PCBs is not a reliable method; therefore, the existing laboratory analysis results will direct the segregation of soils into the soil categories established in Section 8.5.2.

10.1.2 Soil Sampling

Confirmatory soil samples will be collected from the sidewall(s) and/or bottom(s) of TYPE 1 and TYPE 2 excavation areas upon completion of excavation activities in each of these areas. A minimum of 1 sample per TYPE 1 and TYPE 2 excavation areas within the lower soil will be submitted for laboratory analysis for PCBs. TYPE 3 soils will be sampled at intervals of approximately 1 sample per every 50 cubic yards to confirm that total PCB concentrations of <1ppm have been achieved prior to utilizing these soils within the engineered cap for the landscaped areas. The goal of the confirmatory soil sampling will be to insure that the final Site layout will include a PCB data value in each of the excavated areas within the lower soil after completion of the RBC Plan. No additional soil samples are planned within the upper soil as a

sufficient number of samples have been collected from the upper soil which will remain at the Site. Other soil sampling and analysis is not anticipated or warranted.

10.1.3 Groundwater Sampling

As discussed previously, groundwater sampling conducted following the completion of the TCRA has demonstrated that groundwater at the Site is not significantly impacted by PCBs, and continued regular groundwater sampling for PCBs is not necessary. Therefore, no additional groundwater monitoring is anticipated or planned at this time.

10.2 Extraction & Analysis Methods

Chemical extraction of PCBs from individual and composite samples of PCB remediation waste will be conducted utilizing Method 3500B/3540C or Method 3500B/3550B from EPA's SW-846, Test Methods for Evaluating Solid Waste. Method 8082 from SW-846 will be utilized to analyze these extracts for PCBs.

10.3 Data Validation

CDW will perform a data quality assessment on the laboratory data for all samples representative of soil remaining on Site following the completion of the activities described in this RBC Plan. This data quality assessment will include a review of sample custody, field quality control (QC), holding times, surrogate recoveries, method blanks, and laboratory control samples. If this review determines than any of the resulting data is not reliable, CDW will determine if additional supplemental samples must be collected.

11 SITE ACCESS & CLEANUP AUTHORITY

The Site is currently owned by the CEDB. Lawrenceville, LLC will be responsible to complete the activities described in this RBC Plan. Prior to implementation of the RBC Plan, Lawrenceville, LLC will take title to the Site.

FIGURES

CDW CONSULTANTS, INC.

FORMER LAWRENCE METALS FORMING COMPANY
145-155 BEECH ST
CHELSEA, MA 02150

Figure 1 - Site Location

SOURCE: MASSGIS

SCALE: 1:20,000

NOTES:
ALL SOIL TESTING PERFORMED BELOW FABRIC

EXTENT OF PCB CONTAMINATED AREA
(WITHIN PROPERTY BOUNDARIES)

TYPE 2 SOIL STOCKPILE

TYPE 1 SOIL STOCKPILE

DW-1

DW-2

ROUTE 1
(PUBLIC - VARIABLE WIDTH - LAYOUT 4190)

CARTER STREET
(PUBLIC - VARIABLE WIDTH)

BEECH STREET

ORIGINAL NORTHSOUTH BOUNDARY

REVISED NORTHSOUTH BOUNDARY

LIMIT OF STATE LAYOUT

MAP (PRIVATE (ARE

CHELSEA ECONOMIC DEVELOPMENT BOARD

"NO PARKING" & PEDESTRIAN CROSSING

"NO PARKING"

CHAIN LINK FENCE

EDGE OF PAVEMENT

8" PVC SEWER INV.=1.39±

12" CLAY

8" PVC SEWER INV.=2.25±

MH RIM=5.13 INV(BC)=0.13

MH RIM=5.63 INV(a)=-3.97 INV(b)=-3.82 INV(c)=-0.67

MH RIM=5.49 INV(BC)=0.69 INV(a)=2.29

MH RIM=6.40 INV(BC)=1.30

SMH RIM=7.13 INV(BC)=1.16

MH RIM=7.30 INV(BC)=1.35

MH RIM=7.30 INV(BC)=1.55

SMH RIM=7.55 INV(BC)=2.32 INV(a)=4.20

MH RIM=6.29 INV(BC)=1.79 INV(a)=2.24 INV(b)=2.34 INV(c)=3.34

SMH RIM=6.15 INV(BC)=1.65

Proposed Soil Excavation Areas

- Soils with Total PCB Concentrations <1 mg/kg = TYPE 3 Soil
- Soils with Total PCB Concentrations > 1 mg/kg and < 29 mg/kg = TYPE 2 Soil
- Soils with Total PCB Concentrations > or = 29 mg/kg = TYPE 1 Soil
- Locations Where Shallow & Deep Data Exist
  (Upper Triangle Represents Shallow, Lower Represents Deep)
- Monitoring Wells installed on 10/28/14

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 INCH = 50 FT.

NO	DATE	REVISIONS

SEAL

DATE : November 11, 2014
DRAWN : ESW
SCALE : 1" = 50'

Site Plan with Proposed Over Excavation Areas Below the Fabric

145-155 BEECH STREET
CHELSEA, MA

CDW CONSULTANTS,
CIVIL/ENVIRONMENTAL ENGINEERS
40 SPEEN STREET
SUITE 301
FRAMINGHAM, MA 017
TEL. (508) 875-2557 FAX. (508) 875
www.cdwconsultants.co

FIGURE 2

1435.0

NOTES:
ALL SOIL TESTING PERFORMED ABOVE FABRIC

EXTENT OF PCB CONTAMINATED AREA
(WITHIN PROPERTY BOUNDARIES)

ROUTE 1
(PUBLIC – VARIABLE WIDTH – LAYOUT 4190)

ORIGINAL NORTHSOUTH BOUNDARY

REVISED NORTHSOUTH BOUNDARY

MAPLE ST
(PRIVATE – PAPER – 40
(AREA=1,214± S.F.

BEECH STREET
(PUBLIC – 60' WIDE)

I-80 I-100 I-160
H-80 H-220
G-40 G-80 G-120 G-160 G-200 G-260 G-280
F-200 F-280
E-40 E-80 E-120 E-160 E-240 E-320 E-360 E-400
D-100 D-260 D-440
C-40 C-120 C-160 C-200 C-280 C-300 C-320 C-360 C-380 C-440 C-440 R C-480
B-60 B-100 B-360 B520
A-140 A-200 A-320 A-400 A-420 A-480 A-560 A-600
A-158

Approximate Utility Incursion Stockpile Locations

"BEECH ST"
"NO PARKING"
"NO PARKING" & PEDESTRIAN CROSSING
CHAIN LINK FENCE
LIMIT OF STATE LAYOUT
LIMIT OF LAYOUT 4190

MH RIM=5.13 INV(BC)=0.13
CB RIM=5.28 INV(a)=2.68
MH RIM=5.63 INV(a)=-3.97 INV(b)=-3.82 INV(c)=-0.67
MH RIM=5.49 INV(BC)=0.69 INV(a)=2.29
RIM=6.40 INV(BC)=1.30
SMH RIM=9.12
SMH RIM=7.13 INV(BC)=1.16
MH RIM=7.30 INV(BC)=1.35
MH RIM=7.30 INV(BC)=1.55
SMH RIM=7.55 INV(BC)=2.32 INV(a)=4.20
RIM=6.15 INV(BC)=1.65
MH RIM=6.29 INV(BC)=1.79 INV(a)=2.24 INV(b)=2.34 INV(c)=3.34

S38°02'14"E 70.00'
S17°47'43"E 70.95'
S16°27'10"E 192.49'
S20°24'11"E 305.65'
S20°24'11"E 41.95'
S52°04'25"W 36.70'
S52°04'25"W 24.00'
N38°01'59"W 20.00'
N38°01'59"W 40.00'
N52°04'46"E 123.16'

12" CLAY
12" RCP
12" STEEL

- APPROXIMATE LOCATION OF SOIL SAMPLE COLLECTED AT 6"
- APPROXIMATE LOCATION OF SOIL SAMPLE COLLECTED AT 6" WITH A DEEPER SAMPLE COLLECTED BETWEEN 9" & 3'
- APPROXIMATE LOCATION OF STANDING WATER SAMPLE

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 INCH = 50 FT.

NO	DATE	REVISIONS
1	1/15/15	
2	3/18/15	

SEAL

DATE : November 11, 2014
DRAWN : ESW
SCALE : 1" = 50'

SITE PLAN WITH CDW 2015 SOIL & STANDING WATER SAMPLING LOCATIONS ABOVE THE FABRIC

145-155 BEECH STREET
CHELSEA, MA

CDW CONSULTANTS,
CIVIL/ENVIRONMENTAL ENGINEERS
40 SPEEN STREET
SUITE 301
FRAMINGHAM, MA 017
TEL. (508) 875-2657 FAX. (508) 875
www.cdwconsultants.co

FIGURE 3

1435.0

NOTES:
ALL SOIL TESTING PERFORMED ABOVE FABRIC

EXTENT OF PCB CONTAMINATED AREA
(WITHIN PROPERTY BOUNDARIES)

ROUTE 1
(PUBLIC – VARIABLE WIDTH – LAYOUT 4190)

ORIGINAL NORTHSOUTH BOUNDARY

REVISED NORTHSOUTH BOUNDARY

BEECH STREET
(PUBLIC – 40' WIDE)

MAPLE ST
(PRIVATE – PAPER – 40
(AREA=1,214± S.F.

BLUE TEXT = TOTAL PCB CONCENTRATION IN mg/kg IN SOIL SAMPLE COLLECTED AT 6"

GREEN TEXT = TOTAL PCB CONCENTRATION IN mg/kg IN SOIL SAMPLE COLLECTED AT >6"

EPA OVER EXCAVATED UTILITY CORRIDOR

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 INCH = 50 FT.

NO	DATE	REVISIONS
1	1/15/15	
2	3/17/15	

SEAL

DATE : November 11, 2014
DRAWN : ESW
SCALE : 1" = 50'

SITE PLAN WITH CDW 2015 PCBS IN SOIL
ABOVE THE FABRIC

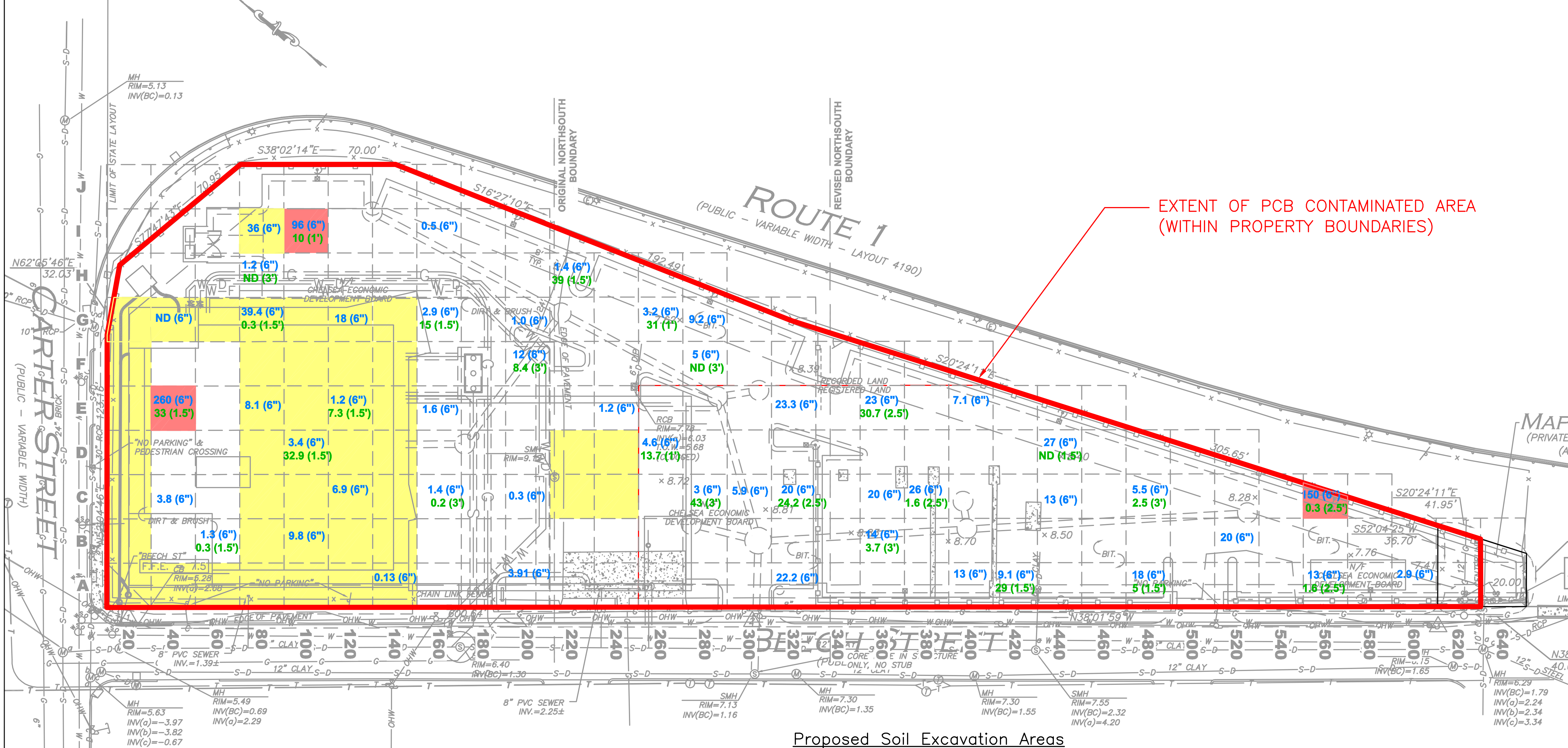
145-155 BEECH STREET
CHELSEA, MA

CDW CONSULTANTS,
CIVIL/ENVIRONMENTAL ENGINEERS
40 SPEEN STREET
SUITE 301
FRAMINGHAM, MA 017
TEL. (508) 875-2657 FAX. (508) 875
www.cdwconsultants.co

FIGURE 4

1435.0

NOTES:
ALL SOIL TESTING PERFORMED ABOVE FABRIC



Proposed Soil Excavation Areas

- Soils with Total PCB Concentrations <1 mg/kg = TYPE 3 Soil
- Soils with Total PCB Concentrations > 1 mg/kg and < 50 mg/kg = = TYPE 2 Soil
- Soils with Total PCB Concentrations > or = 50 mg/kg = = TYPE 1 Soil

GRAPHIC SCALE

(IN FEET)
1 INCH = 50 FT.

NO	DATE	REVISIONS

SEAL

DATE : November 11, 2014
DRAWN : ESW
SCALE : 1" = 50'

Site Plan with Proposed Soil Removal Areas Above the Fabric
145–155 BEECH STREET
CHELSEA, MA

CDW CONSULTANTS, CIVIL/ENVIRONMENTAL ENGINEERS
40 SPEEN STREET
SUITE 301
FRAMINGHAM, MA 017
TEL (508) 875-2657 FAX (508) 875
www.cdwconsultants.co

FIGURE 5

1435.0

TABLES

Table 1
Soil Headspace Screaning Results - Total Organic Volatiles (TOV's)
145-155 Beach Street, Chelsea, MA
October 27, 28, and November 7, 2014

Soil		
Sample ID	**Depth**	**TOV's (ppmv)**
10/27/2014		
A-220		
S-1	4-5'	0.0
S-2	5-10'	0.0
A-240		
S-1	0-5	0.0
S-2	5-8'	0.0
A-260		
S-1	0-5	0.0
S-2	5-10'	0.0
A-280		
S-1	2-3'	0.0
B-220		
S-1	0-5'	0.0
B-240		
S-1	0-5	0.0
S-2	5-8'	0.0
B-260		
S-1	0-5	0.0
S-2	5-10'	0.0
C-220		
S-1	0-5	0.0
S-2	5-10'	0.0
C-260		
S-1	0-5	0.0
S-2	5-10'	0.0
D-220		
S-1	0-5	0.0
S-2	5-10'	0.0
D-240		
S-1	0-5'	0.0
D-260		
S-1	0-5'	0.0
B-280		
S-1	4-5'	0.0
A-320		
S-1	3-4'	0.0
A-340		
S-1	2-3'	0.0
A-360		
S-1	2-3'	0.0

Table 1
Soil Headspace Screaning Results - Total Organic Volatiles (TOV's)
145-155 Beach Street, Chelsea, MA
October 27, 28, and November 7, 2014

Soil		
Sample ID	**Depth**	**TOV's (ppmv)**
A-380		
S-1	2-3'	0.0
A-400		
S-1	2-3'	0.0
A-420		
S-1	2-3'	0.0
C-240		
S-1	0-5	0.0
S-2	5-7'	0.0
A-440		
S-1	2-3'	0.0
10/28/2014		
E-440		
S-1	0-2.5'	0.0
C-400		
S-1	4-5'	0.0
B-340		
S-1	0-3.5'	0.0
B-320		
S-1	0-3.5'	0.1
C-300		
S-1	0-5'	0.1
D-300		
S-1	0-5'	0.0
H-280		
S-1	0-3'	13.2
F-260		
S-1	0-5'	10.2
G-240		
S-1	0-5'	0.2
J-140		
S-1	0-3'	0.0
I-140		
S-1	0-7'	2.0
I-120		
S-1	0-7'	0.0
J-100		
S-1	0-1.5'	0.0
G-120		
S-1	0-1.5'	0.0

Table 1
Soil Headspace Screaning Results - Total Organic Volatiles (TOV's)
145-155 Beach Street, Chelsea, MA
October 27, 28, and November 7, 2014

Soil		
Sample ID	**Depth**	**TOV's (ppmv)**
G-140		
S-1	0-3.5'	0.0
F-140		
S-1	0-7'	0.0
F-180		
S-1	0-5'	0.0
E-200		
S-1	0-6'	0.0
E-180		
S-1	0-12'	2.0
F-160		
S-1	0-5'	0.0
S-2	5-10'	0.0
D-180		
S-1	0-5'	0.0
S-2	5-6'	0.0
F-180		
S-1	0-5'	0.0
D-160		
S-1	11-12'	0.0
A-140		
S-1	0-3.5'	0.0
A-100		
S-1	0-3.5'	0.0
A-80		
S-1	0-3.5'	0.0
A-60		
S-1	0-3.5'	0.0
A-400		
S-1	0-3.5'	0.0
C-60		
S-1	0-6'	0.0
D-60		
S-1	2-3'	0.0
A-140		
S-1	0-3.5'	0.0
E-280		
S-1	0-5'	0.0
S-2	5-10'	0.0
S-3	10-14'	0.0

Table 1
Soil Headspace Screaning Results - Total Organic Volatiles (TOV's)
145-155 Beach Street, Chelsea, MA
October 27, 28, and November 7, 2014

Soil		
Sample ID	**Depth**	**TOV's (ppmv)**
E-300		
S-1	0-5'	0.0
S-2	5-10'	0.0
S-3	10-14'	0.0
B-300		
S-1	0-5'	0.0
S-2	5-10'	0.0
S-3	10-14'	0.0
C-520		
S-1	0-10'	0.0
S-2	10-14'	0.0
11/7/2014		
G-40		
S-1	0-1.5'	0.0
G-20		
S-1	0-3.5'	0.0
B-40		
S-1	0-3.5'	0.0
C-260		
S-1	5-6'	0.0
A-240		
S-1	2-3'	0.0
B-240		
S-1	2-3'	0.0
C-240		
S-1	2-3'	0.0
D-240		
S-1	4-5'	0.0
B-260		
S-1	3-4'	0.0
C-260		
S-1	3-4'	0.0
F-180		
S-1	0-5'	59.0
J-140		
S-1	0-3'	12.0

PPMV = Parts Per Million By Volume
NM = Not Measured
*Sample Submitted for Laboratory Analysis

Table 2
Proposed Excavation Volumes and Pre-Excavation Sampling Results
145-155 Beech Street, Chelsea, MA

Grid	Depth of Fabric Below Grade	Excavation Layer				2014 Sampling				EPA PCB Results**
		Area (sf)	Vertical Thickness (ft)	Excavation Depth below Fabric (ft)	Volume (cy)	Sample Depth Below Grade (ft)	Sample Depth Below Fabric (ft)	Total PCBs*	Sample Collection Date	
A 20	–	0.0	0.0	0.0	0.00	–	–	–	–	–
A 40	3'	218.3	1.0	1.0	8.08	3.5'	0.5'	0.99	10/28/14	10
A 60	3'	180.0	1.0	1.0	6.67	3.5'	0.5'	1.20	10/28/14	3.1
A 80	3'	156.7	0.5	0.5	2.90	3.5'	0.5'	0.39	10/28/14	16
A 100	3'	156.7	0.5	0.5	2.90	3.5'	0.5'	ND	10/28/14	2.6
A 120	–	0.0	0.0	0.0	0.00	–	–	–	–	–
A 140	3'	148.7	0.5	0.5	2.75	3.5'	0.5'	23.2	10/28/14	0.7
A 160	–	0.0	0.0		0.00	–	–	–	–	–
A 180	–	0.0	0.0		0.00	–	–	–	–	–
A 200	–	0.0	0.0		0.00	–	–	–	–	–
A 220	at grade	149.7	2.1	2.1	11.64	2-3'	2-3'	ND	10/27/14	5.7
		250.3	5.0	7.1	46.36	4-5'	4-5'	ND	11/7/14	–
A 240	at grade	149.4	2.1	2.1	11.62	2-3'	2-3'	12.7	10/27/14	8.7
		250.6	5.0	7.1	46.40	4-5'	4-5'	ND	10/27/14	–
A 260	at grade	149.3	2.1	2.1	11.61	2-3'	2-3'	0.27	10/27/14	6.3
		217.5	5.0	7.1	40.28	4-5'	4-5'	ND	10/27/14	–
A 280	at grade	171.8	2.1	2.1	13.36	2-3'	2-3'	ND	10/27/14	–
		48.0	5.0	7.1	8.89	4-5'	4-5'	ND	11/7/14	11
A 300	10'	60.0	0.5	0.5	1.02	10-11'	0-1'	ND	10/28/14	ND
A 320	1'	12.5	3.0	3.0	1.39	3-4'	2-3'	ND	10/27/14	34
		195.0	1.1	4.1	7.95					
A 340	1'	151.3	1.1	1.1	6.16	2-3'	1-2'	68	10/27/14	30
A 360	1'	129.7	1.1	1.1	5.28	2-3'	1-2'	53	10/27/14	42
A 380	1'	129.7	1.1	1.1	5.28	2-3'	1-2'	29	10/27/14	48
A 400	1'	129.7	1.1	1.1	5.28	2-3'	1-2'	ND	10/27/14	62
A 420	1'	0.0	0.0	0.0	0.00	2-3'	1-2'	11.6	10/27/14	ND
A 440	1'	12.6	1.0	1.0	0.47	2-3'	1-2'	ND	10/27/14	2.2
A 460	1'	129.7	1.1	1.1	5.28	2-3'	1-2'	62	11/7/14	13
A 480	–	0.0	0.0	0.0	0.00	–	–	–	–	–
A 500	–	0.0	0.0	0.0	0.00	–	–	–	–	–
A 520	–	0.0	0.0	0.0	0.00	–	–	–	–	–
A 540	–	0.0	0.0	0.0	0.00	–	–	–	–	–
A 560	–	0.0	0.0	0.0	0.00	–	–	–	–	–
A 580	–	0.0	0.0	0.0	0.00	–	–	–	–	–
A 600	–	0.0	0.0	0.0	0.00	–	–	–	–	–
A 620	–	0.0	0.0	0.0	0.00	–	–	–	–	–
A 640	–	0.0	0.0	0.0	0.00	–	–	–	–	–

On Site Managed Soils	208.54
Total TSCA Waste	22
Remediation Waste	21.04
Total =	***251.60***

* by soxhlet extraction

** EPA's Region 1 PCBs in Soils Field Method

Table 2

Proposed Excavation Volumes and Pre-Excavation Sampling Results

145-155 Beech Street, Chelsea, MA

Row B

Grid	Depth of Fabric Below Grade	Excavation Layer				2014 Sampling				EPA PCB Results**
		Area (sf)	Vertical Thickness (ft)	Excavation Depth below Fabric (ft)	Volume (cy)	Sample Depth Below Grade (ft)	Sample Depth Below Fabric (ft)	Total PCBs*	Sample Collection Date	
B 20		0.0	0.0	0.0	0.00	–	–	–	–	11.2
B 40	3'	400.0	1.0	1.0	14.81	3.5'	0.5'	0.75	11/7/14	ND
B 60	–	0.0	0.0	0.0	0.00	–	–	–	–	5.7
B 80	–	0.0	0.0	0.0	0.00	–	–	–	–	5.2
B 100	–	0.0	0.0	0.0	0.00	–	–	–	–	36
B 120	–	0.0	0.0	0.0	0.00	–	–	–	–	11.3*
B 140	–	0.0	0.0	0.0	0.00	–	–	–	–	ND
B 160	–	0.0	0.0	0.0	0.00	–	–	–	–	ND
B 180	–	0.0	0.0	0.0	0.00	–	–	–	–	ND
B 200	–	0.0	0.0	0.0	0.00	–	–	–	–	ND
B 220	at grade	400.0	5.0	5.0	74.07	2-3'	2-3'	0.21	10/27/14	0.87
B 240	at grade	400.0	5.0	5.0	74.07	2-3'	2-3'	22.2	10/27/14	11
B 260	at grade	52.9	5.0	5.0	9.80	3-4'	3-4'	22	10/27/14	20
		344.6	6.5	11.5	82.96	6-7'	6-7'	ND	10/27/14	-
B 280	at grade	76.6	6.5	6.5	18.44	4-5'	4-5'	ND	10/27/14	22
		26.6	9.0	15.5	8.87	8-9'	8-9'	ND	10/27/14	-
		36.9	6.2	21.7	8.49					
B 300	9'	50.7	0.5	0.5	0.94	13-14'	3-4'	ND	10/28/14	ND
		113.1	4.0	4.5	16.76					
B 320	3'	60.1	0.3	0.3	0.56	3.5'	0.5'	0.12	10/28/14	ND
B 340	3'	60.1	0.3	0.3	0.56	3.5'	0.5'	0.27	10/28/14	ND
B 360	–	0.0	0.0	0.0	0.00	–	–	–	–	-
B 380	–	0.0	0.0	0.0	0.00	–	–	–	–	-
B 400	–	0.0	0.0	0.0	0.00	–	–	–	–	-
B 420	–	0.0	0.0	0.0	0.00	–	–	–	–	-
B 440	–	0.0	0.0	0.0	0.00	–	–	–	–	-
B 460	–	0.0	0.0	0.0	0.00	–	–	–	–	-
B 480	–	0.0	0.0	0.0	0.00	–	–	–	–	-
B 500	–	0.0	0.0	0.0	0.00	–	–	–	–	-
B 520	2'	10.7	3.5	3.5	1.39	deminimus quantity covered by C520				26
B 540	–	0.0	0.0	0.0	0.00	–	–	–	–	-
B 560	–	0.0	0.0	0.0	0.00	–	–	–	–	-
B 580	–	0.0	0.0	0.0	0.00	–	–	–	–	-
B 600	–	0.0	0.0	0.0	0.00	–	–	–	–	-
B 620	–	0.0	0.0	0.0	0.00	–	–	–	–	-
B 640	–	0.0	0.0	0.0	0.00	–	–	–	–	-
On Site Managed Soils					227.84					
Total TSCA Waste					0					
Remediation Waste					83.87					
				Total =	***311.71***					

* by soxhlet extraction

** EPA's Region 1 PCBs in Soils Field Method

Table 2

Row C

Proposed Excavation Volumes and Pre-Excavation Sampling Results

145-155 Beech Street, Chelsea, MA

Grid	Depth of Fabric Below Grade	Excavation Layer				2014 Sampling				EPA PCB Results**
		Area (sf)	Vertical Thickness (ft)	Excavation Depth below Fabric (ft)	Volume (cy)	Sample Depth Below Grade (ft)	Sample Depth Below Fabric (ft)	Total PCBs*	Sample Collection Date	
C 20	–	0.0	0.0	0.0	0.00	–	–	–	–	
C 40	3'	46.9	1.0	1.0	1.74	deminimus quantity covered by B40				
C 60	3'	114.3	2.5	2.5	10.58	4-6'	1-3'	0.29	10/28/14	17.00
		17.8	1.0	3.5	0.66					
C 80	–	28.0	1.5	1.5	1.56	deminimus quantity covered by C60				
C 100	–	0.0	0.0	0.0	0.00	–	–	–	–	
C 120	–	0.0	0.0	0.0	0.00	–	–	–	–	
C 140	–	0.0	0.0	0.0	0.00	–	–	–	–	
C 160	–	0.0	0.0	0.0	0.00	–	–	–	–	
C 180	–	0.0	0.0	0.0	0.00	–	–	–	–	–
C 200	–	0.0	0.0	0.0	0.00	–	–	–	–	–
C 220	2'	400.0	3.0	3.0	44.44	4-5'	2-3'	ND	10/27/14	51
C 240	2'	400.0	3.0	3.0	44.44	4-5'	2-3'	49	10/27/14	49
C 260	2'	382.6	3.0	3.0	42.51	3-4'	1-2'	11.3	10/27/14	87
		17.7	4.5	7.5	2.95	5-6'	3-4'	ND	11/7/14	-
C 280	6'	9.4	3.0	3.0	1.04	deminimus quantity covered by B280				–
C 300	1'	62.3	4.2	4.2	9.69	4-5'	3-4'	62	10/28/14	14
C 320	–	0.0	0.0	0.0	0.00	–	–	–	–	–
C 340	–	0.0	0.0	0.0	0.00	–	–	–	–	–
C 360	–	0.0	0.0	0.0	0.00	–	–	–	–	–
C 380	–	0.0	0.0	0.0	0.00	–	–	–	–	–
C 400	1'	63.6	4.0	4.0	9.42	4-5'	3-4'	0.62	10/28/14	ND
		10.2	0.7	4.7	0.28					
C 420	–	0.0	0.0	0.0	0.00	–	–	–	–	–
C 440	–	0.0	0.0	0.0	0.00	–	–	–	–	–
C 460	–	0.0	0.0	0.0	0.00	–	–	–	–	–
C 480	–	0.0	0.0	0.0	0.00	–	–	–	–	–
C 500	–	0.0	0.0	0.0	0.00	–	–	–	–	–
C 520	8'	52.9	3.5	3.5	6.86	11-12'	3-4'	ND	10/28/14	16
C 540	–	0.0	0.0	0.0	0.00	–	–	–	–	–
C 560	–	0.0	0.0	0.0	0.00	–	–	–	–	–
C 580	–	0.0	0.0	0.0	0.00	–	–	–	–	–

On Site Managed Soils	79.53
Total TSCA Waste	54.14
Remediation Waste	42.51
Total =	***176.18***

* by soxhlet extraction

** EPA's Region 1 PCBs in Soils Field Method

Table 2

Row D

Proposed Excavation Volumes and Pre-Excavation Sampling Results

145-155 Beech Street, Chelsea, MA

Grid	Depth of Fabric Below Grade	Excavation Layer				2014 Sampling				EPA PCB Results**
		Area (sf)	Vertical Thickness (ft)	Excavation Depth below Fabric (ft)	Volume (cy)	Sample Depth Below Grade (ft)	Sample Depth Below Fabric (ft)	Total PCBs*	Sample Collection Date	
D 20	–	0.0	0.0	0.0	0.00	–	–	–	–	-
D 40	–	0.0	0.0	0.0	0.00	–	–	–	–	-
D 60	1'	157.3	1.5	1.5	8.74	2-3'	1-2'	8.6	10/28/14	ND
D 80	1'	38.5	1.5	1.5	2.14	deminimus quantity covered by D60				-
D 100	–	0.0	0.0	0.0	0.00	–	–	–	–	-
D 120	–	0.0	0.0	0.0	0.00	–	–	–	–	-
D 140	–	0.0	0.0	0.0	0.00	–	–	–	–	–
D 160	8'	51.3	0.5	0.5	0.95	11-12'	3-4'	0.64	10/28/14	18.0
		18.4	4.0	4.5	2.73					
D 180	6'	45.2	4.0	4.0	6.70	9-10'	3-4'	ND	10/28/14	ND
D 200	–	0.0	0.0	0.0	0.00	–	–	–	–	–
D 220	2'	400.0	3.0	3.0	44.44	4-5'	2-3'	ND	10/27/14	79
D 240	2'	400.0	3.0	3.0	44.44	4-5'	2-3'	1.44	10/27/14	81
D 260	2'	0.0	0.0	0.0	0.00	4-5'	2-3'	4.2	10/27/14	58
D 280	–	0.0	0.0	0.0	0.00	–	–	–	–	–
D 300	1'	57.6	4.2	4.2	8.96	4-5'	3-4'	ND	10/28/14	8.1
D 320	–	0.0	0.0	0.0	0.00	–	–	–	–	–
D 340	–	0.0	0.0	0.0	0.00	–	–	–	–	–
D 360	–	0.0	0.0	0.0	0.00	–	–	–	–	–
D 380	–	0.0	0.0	0.0	0.00	–	–	–	–	–
D 400	–	0.0	0.0	0.0	0.00	–	–	–	–	–
D 420	–	0.0	0.0	0.0	0.00	–	–	–	–	–
D 440	–	0.0	0.0	0.0	0.00	–	–	–	–	–
D 460	–	0.0	0.0	0.0	0.00	–	–	–	–	–
D 480	–	0.0	0.0	0.0	0.00	–	–	–	–	–
D 500	–	0.0	0.0	0.0	0.00	–	–	–	–	–
D 520	–	0.0	0.0	0.0	0.00	–	–	–	–	–

On Site Managed Soils	63.78
Total TSCA Waste	0
Remediation Waste	55.32
Total =	***119.10***

* by soxhlet extraction

** EPA's Region 1 PCBs in Soils Field Method

Table 2

Row E

Proposed Excavation Volumes and Pre-Excavation Sampling Results

145-155 Beech Street, Chelsea, MA

Grid	Depth of Fabric Below Grade	Excavation Layer				2014 Sampling				EPA PCB Results**
		Area (sf)	Vertical Thickness (ft)	Excavation Depth below Fabric (ft)	Volume (cy)	Sample Depth Below Grade (ft)	Sample Depth Below Fabric (ft)	Total PCBs*	Sample Collection Date	
E 20	–	0.0	0.0	0.0	0.00	–	–	–	–	–
E 40	–	0.0	0.0	0.0	0.00	–	–	–	–	–
E 60	–	0.0	0.0	0.0	0.00	–	–	–	–	–
E 80	–	0.0	0.0	0.0	0.00	–	–	–	–	–
E 100	–	0.0	0.0	0.0	0.00	–	–	–	–	–
E 120	–	0.0	0.0	0.0	0.00	–	–	–	–	–
E 140	–	0.0	0.0	0.0	0.00	–	–	–	–	–
E 160	8'	9.2	4.5	4.5	1.54	deminimus quantity covered by E180				–
E 180	8'	81.6	4.5	4.5	13.60	11-12'	3-4'	ND	10/28/14	2.8
E 200	2'	125.8	3.4	3.4	15.84	5-6'	3-4'	ND	10/28/14	6.3
E 220	–	0.0	0.0	0.0	0.00	–	–	–	–	–
E 240	–	0.0	0.0	0.0	0.00	–	–	–	–	–
E 260	–	0.0	0.0	0.0	0.00	–	–	–	–	–
E 280	10'	111.5	3.9	3.9	16.11	13-14'	3-4'	ND	10/28/14	0.49
E 300	10'	29.9	3.7	3.7	4.10	13-14'	3-4'	ND	10/28/14	50
		50.4	7.1	10.8	13.25					
E 320	–	0.0	0.0	0.0	0.00	–	–	–	–	–
E 340	–	0.0	0.0	0.0	0.00	–	–	–	–	–
E 360	–	0.0	0.0	0.0	0.00	–	–	–	–	–
E 380	–	0.0	0.0	0.0	0.00	–	–	–	–	–
E 400	–	0.0	0.0	0.0	0.00	–	–	–	–	–
E 420	–	0.0	0.0	0.0	0.00	–	–	–	–	–
E 440	2'	12.6	1.0	1.0	0.47	2.5'	0.5	44	10/28/14	-
E 460	–	0.0	0.0	0.0	0.00	–	–	–	–	–

On Site Managed Soils	64.44
Total TSCA Waste	0.47
Remediation Waste	0
Total =	***64.91***

* by soxhlet extraction

** EPA's Region 1 PCBs in Soils Field Method

Table 2

Row F

Proposed Excavation Volumes and Pre-Excavation Sampling Results

145-155 Beech Street, Chelsea, MA

Grid	Depth of Fabric Below Grade	Excavation Layer				2014 Sampling				EPA PCB Results**
		Area (sf)	Vertical Thickness (ft)	Excavation Depth below Fabric (ft)	Volume (cy)	Sample Depth Below Grade (ft)	Sample Depth Below Fabric (ft)	Total PCBs*	Sample Collection Date	
F 20	3'	29.1	0.5	0.5	0.54	deminimus quantity covered by G20				–
F 40	1'	58.2	0.5	0.5	1.08	deminimus quantity covered by G40				–
F 60	1'	3.9	0.5	0.5	0.07	deminimus quantity covered by G40				–
F 80	–	0.0	0.0	0.0	0.00	–	–	–	–	–
F 100	–	0.0	0.0	0.0	0.00	–	–	–	–	–
F 120	–	0.0	0.0	0.0	0.00	–	–	–	–	–
F 140	3'	167.1	4.0	4.0	24.76	6-7'	3-4'	ND	10/28/14	63
F 160	1'	55.5	4.5	4.5	9.33	4-5'	3-5'	ND	10/28/14	21.3
		26.4	9.5	14.0	9.29	8-10'	7-9'	ND	10/28/14	-
F 180	1'	233.9	4.5	4.5	38.98	4-5'	3-4'	22.2	10/28/14	ND
F 200	–	0.0	0.0	0.0	0.00	–	–	–	–	–
F 220	–	0.0	0.0	0.0	0.00	–	–	–	–	–
F 240	–	0.0	0.0	0.0	0.00	–	–	–	–	–
F 260	1'	68.1	2.9	2.9	7.31	3-4'	2-3'	1.28	10/28/14	ND
F 280	–	0.0	0.0	0.0	0.00	–	–	–	–	–
F 300	–	0.0	0.0	0.0	0.00	–	–	–	–	–
F 320	–	0.0	0.0	0.0	0.00	–	–	–	–	–
F 340	–	0.0	0.0	0.0	0.00	–	–	–	–	–
F 360	–	0.0	0.0	0.0	0.00	–	–	–	–	–
F 380	–	0.0	0.0	0.0	0.00	–	–	–	–	–
F 400	–	0.0	0.0	0.0	0.00	–	–	–	–	–

On Site Managed Soils	45.07
Total TSCA Waste	0
Remediation Waste	46.30
Total =	***91.36***

* by soxhlet extraction

** EPA's Region 1 PCBs in Soils Field Method

Table 2

Row G

Proposed Excavation Volumes and Pre-Excavation Sampling Results

145-155 Beech Street, Chelsea, MA

Grid	Depth of Fabric Below Grade	Excavation Layer				2014 Sampling				EPA PCB Results**
		Area (sf)	Vertical Thickness (ft)	Excavation Depth below Fabric (ft)	Volume (cy)	Sample Depth Below Grade (ft)	Sample Depth Below Fabric (ft)	Total PCBs*	Sample Collection Date	
G 20	3'	155.3	0.5	0.5	2.88	3.5'	0.5	0.64	11/7/14	ND
G 40	1'	309.7	0.5	0.5	5.74	1.5'	0.5	0.68	11/7/14	15.1
G 60	1'	20.7	0.5	0.5	0.38	deminimus quantity covered by G40				–
G 80	–	0.0	0.0	0.0	0.00	–	–	–	–	–
G 100	–	0.0	0.0	0.0	0.00	–	–	–	–	–
G 120	1'	174.4	0.5	0.5	3.23	1.5'	0.5'	28	10/28/14	24.1
G 140	3'	321.5	0.5	0.5	5.95	3.5'	0.5'	13.4	10/28/14	ND
G 160	–	0.0	0.0	0.0	0.00	–	–	–	–	–
G 180	–	0.0	0.0	0.0	0.00	–	–	–	–	–
G 200	–	0.0	0.0	0.0	0.00	–	–	–	–	–
G 220	–	0.0	0.0	0.0	0.00	–	–	–	–	–
G 240	1'	31.3	2.4	2.4	2.78	3-4'	2-3'	68	10/28/14	0.8
G 260	–	0.0	0.0	0.0	0.00	–	–	–	–	–
G 280	–	0.0	0.0	0.0	0.00	–	–	–	–	–
G 300	–	0.0	0.0	0.0	0.00	–	–	–	–	–
G 320	–	0.0	0.0	0.0	0.00	–	–	–	–	–
On Site Managed Soils					8.99					
Total TSCA Waste					2.78					
Remediation Waste					9.18					
				Total =	***20.96***					

* by soxhlet extraction

** EPA's Region 1 PCBs in Soils Field Method

Table 2

Proposed Excavation Volumes and Pre-Excavation Sampling Results

145-155 Beech Street, Chelsea, MA

Grid	Depth of Fabric Below Grade	Excavation Layer				2014 Sampling				EPA PCB Results**
		Area (sf)	Vertical Thickness (ft)	Excavation Depth below Fabric (ft)	Volume (cy)	Sample Depth Below Grade (ft)	Sample Depth Below Fabric (ft)	Total PCBs*	Sample Collection Date	
H 20	–	0.0	0.0	0.0	0.00	–	–	–	–	–
H 40	–	0.0	0.0	0.0	0.00	–	–	–	–	–
H 60	–	0.0	0.0	0.0	0.00	–	–	–	–	–
H 80	–	0.0	0.0	0.0	0.00	–	–	–	–	–
H 100	–	0.0	0.0	0.0	0.00	–	–	–	–	–
H 120	–	0.0	0.0	0.0	0.00	–	–	–	–	–
H 140	–	0.0	0.0	0.0	0.00	–	–	–	–	–
H 160	–	0.0	0.0	0.0	0.00	–	–	–	–	–
H 180	–	0.0	0.0	0.0	0.00	–	–	–	–	–
H 200	–	0.0	0.0	0.0	0.00	–	–	–	–	–
H 220	–	0.0	0.0	0.0	0.00	–	–	–	–	–
H 240	–	0.0	0.0	0.0	0.00	–	–	–	–	–
H 260	–	0.0	0.0	0.0	0.00	–	–	–	–	–
H 280	1'	12.6	2.0	2.0	0.93	2-3'	1-2'	3.58	10/28/14	–

On Site Managed Soils	0
Total TSCA Waste	0
Remediation Waste	0.93
Total =	***0.93***

* by soxhlet extraction

** EPA's Region 1 PCBs in Soils Field Method

Table 2

Row I

Proposed Excavation Volumes and Pre-Excavation Sampling Results

145-155 Beech Street, Chelsea, MA

Grid	Depth of Fabric Below Grade	Excavation Layer				2014 Sampling				EPA PCB Results**
		Area (sf)	Vertical Thickness (ft)	Excavation Depth below Fabric (ft)	Volume (cy)	Sample Depth Below Grade (ft)	Sample Depth Below Fabric (ft)	Total PCBs*	Sample Collection Date	
I 20	–	0.0	0.0	0.0	0.00	–	–	–	–	–
I 40	–	0.0	0.0	0.0	0.00	–	–	–	–	–
I 60	–	0.0	0.0	0.0	0.00	–	–	–	–	–
I 80	–	0.0	0.0	0.0	0.00	–	–	–	–	–
I 100	–	0.0	0.0	0.0	0.00	–	–	–	–	–
I 120	1'	23.0	6.3	6.3	5.37	6-7'	5-6'	ND	10/28/14	13.5
I 140	1'	21.8	6.3	6.3	5.09	4-7'	3-6'	4.75	10/28/14	43.8
		55.2	2.9	9.2	5.93					
I 160	–	0.0	0.0	0.0	0.00	–	–	–	–	–
I 180	–	0.0	0.0	0.0	0.00	–	–	–	–	–
I 200	1'	12.6	1.0	1.0	0.47	2-3'	1-2'	76	11/7/14	–
On Site Managed Soils					5.37					
Total TSCA Waste					0.47					
Remediation Waste					11.02					
				Total =	***16.85***					

* by soxhlet extraction

** EPA's Region 1 PCBs in Soils Field Method

Table 2

Row J

Proposed Excavation Volumes and Pre-Excavation Sampling Results

145-155 Beech Street, Chelsea, MA

Grid	Depth of Fabric Below Grade	Excavation Layer				2014 Sampling				EPA PCB Results**
		Area (sf)	Vertical Thickness (ft)	Excavation Depth below Fabric (ft)	Volume (cy)	Sample Depth Below Grade (ft)	Sample Depth Below Fabric (ft)	Total PCBs*	Sample Collection Date	
J 20	–	0.0	0.0	0.0	0.00	–	–	–	–	–
J 40	–	0.0	0.0	0.0	0.00	–	–	–	–	–
J 60	–	0.0	0.0	0.0	0.00	–	–	–	–	–
J 80	–	0.0	0.0	0.0	0.00	–	–	–	–	–
J 100	1'	12.6	1.0	1.0	0.47	1.5'	0.5'	2.5	10/28/14	21
J 120	1'	9.8	5.3	5.3	1.92	deminimus quantity covered by I120				–
		9.1	5.3	10.6	1.79	deminimus quantity covered by I120				–
J 140	1'	283.3	1.5	1.5	15.42	2-3'	1-2'	0.64	10/28/14	28.4
J 160	–	0.0	0.0	0.0	0.00	–	–	–	–	–
On Site Managed Soils					3.71					
Total TSCA Waste					0					
Remediation Waste					15.89					
				Total =	***19.60***					

* by soxhlet extraction

** EPA's Region 1 PCBs in Soils Field Method

Table 3
Soil Characterization Results
145-155 Beech Street, Chelsea, MA

Parameter	SAMPLING LOCATION																	
	PC-1	**PC-2**	A240	B240	B260	C260	D240	F180	J140	A60	A140	D60	F260	G120	G140	H280	I140	J100
Sampling Date	11/7/2014	11/7/2014	10/27/14	10/27/14	10/27/14	10/27/14	10/27/14	10/28/14	10/28/14	10/28/14	10/28/14	10/28/14	10/28/14	10/28/14	10/28/14	10/28/14	10/28/14	10/28/14
Sample Depth	- Feet	- Feet	2-3 ft	2-3 ft	3-4 ft	3-4 ft	4-5 ft	4-5 ft	2-3 ft	3.5 ft	3.5 ft	2-3 ft	3-4 ft	1.5 ft	3.5 ft	2-3 ft	4-7 ft	1.5 ft
SM 2540G (% Wt)																		
% Solids	43.4	83.8	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
SW-846 1010 (°F)																		
FLASHPOINT	> 212 °F	> 212 °F	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
SW-846 1030 (present/absent)																		
IGNITABILITY	Absent	Absent	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
SW-846 6010C (mg/Kg dry) Metals Digestion																		
ARSENIC	14	9.1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BARIUM	520	210	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
CADMIUM	25	13	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
CHROMIUM	230	69	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
LEAD	1200	520	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
SELENIUM	ND (11)	ND (5.8)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
SILVER	ND (1.1)	ND (0.58)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
SW-846 7471B (mg/Kg dry) Metals Digestion																		
MERCURY	0.27	3.7	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
SW-846 6010C (mg/L) 1311 TCLP EXT																		
CADMIUM	0.010	0.048	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
CHROMIUM	ND (0.010)	ND (0.010)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
LEAD	0.12	0.47	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
SW-846 8081B (mg/Kg dry)																		
ALDRIN	ND (0.28)	ND (0.29)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
ALPHA-BHC	ND (0.28)	ND (0.29)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BETA-BHC	ND (0.28)	ND (0.29)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
DELTA-BHC	ND (0.28)	ND (0.29)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
GAMMA-BHC (LINDANE)	ND (0.11)	ND (0.11)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
CHLORDANE	ND (1.1)	ND (1.1)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
4,4'-DDD	ND (0.23)	ND (0.23)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
4,4'-DDE	ND (0.23)	ND (0.23)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
4,4'-DDT	ND (0.23)	ND (0.23)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
DIELDRIN	ND (0.23)	ND (0.23)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
ENDOSULFAN I	ND (0.28)	ND (0.29)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
ENDOSULFAN II	ND (0.45)	ND (0.46)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
ENDOSULFAN SULFATE	ND (0.45)	ND (0.46)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
ENDRIN	ND (0.45)	ND (0.46)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
ENDRIN KETONE	ND (0.45)	ND (0.46)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
HEPTACHLOR	ND (0.28)	ND (0.29)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
HEPTACHLOR EPOXIDE	ND (0.28)	ND (0.29)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
HEXACHLOROBENZENE	ND (0.34)	ND (0.34)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
METHOXYCHLOR	ND (2.8)	ND (2.9)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
SW-846 8082A (mg/Kg dry)																		
PCB 1016	ND (1.1)	ND (1.1)	ND (1.2)	ND (1.2)	ND (3.7)	ND (1.2)	ND (0.50)	ND (2.1)	ND (0.12)	ND (0.11)	ND (2.2)	ND (1.1)	ND (0.15)	ND (5.7)	ND (1.6)	ND (0.16)	ND (0.34)	ND (0.57)
PCB 1221	ND (1.1)	ND (1.1)	ND (1.2)	ND (1.2)	ND (3.7)	ND (1.2)	ND (0.50)	ND (2.1)	ND (0.12)	ND (0.11)	ND (2.2)	ND (1.1)	ND (0.15)	ND (5.7)	ND (1.6)	ND (0.16)	ND (0.34)	ND (0.57)
PCB 1232	ND (1.1)	ND (1.1)	ND (1.2)	ND (1.2)	ND (3.7)	ND (1.2)	ND (0.50)	ND (2.1)	ND (0.12)	ND (0.11)	ND (2.2)	ND (1.1)	ND (0.15)	ND (5.7)	ND (1.6)	ND (0.16)	ND (0.34)	ND (0.57)
PCB 1242	ND (1.1)	ND (1.1)	ND (1.2)	ND (1.2)	ND (3.7)	ND (1.2)	ND (0.50)	ND (2.1)	ND (0.12)	ND (0.11)	ND (2.2)	ND (1.1)	ND (0.15)	ND (5.7)	ND (1.6)	ND (0.16)	ND (0.34)	ND (0.57)
PCB 1248	3.8	4.1	3.9	7.2	ND (3.7)	3.2	0.52	7.2	0.28	0.38	6.4	2.8	0.39	ND (5.7)	4.8	0.38	1.3	ND (0.57)
PCB 1254	7.1	9	8.8	15	22	8.1	0.92	15	0.36	0.82	14	5.8	0.71	28	8.6	1.2	2.6	2.5
PCB 1260	1.3	ND (1.1)	ND (1.2)	ND (1.2)	ND (3.7)	ND (1.2)	ND (0.50)	ND (2.1)	ND (0.12)	ND (0.11)	2.8	ND (1.1)	0.18	ND (5.7)	ND (1.6)	2.0	0.85	ND (0.57)
PCB 1262	ND (1.1)	ND (1.1)	ND (1.2)	ND (1.2)	ND (3.7)	ND (1.2)	ND (0.50)	ND (2.1)	ND (0.12)	ND (0.11)	ND (2.2)	ND (1.1)	ND (0.15)	ND (5.7)	ND (1.6)	ND (0.16)	ND (0.34)	ND (0.57)
PCB 1268	ND (1.1)	ND (1.1)	ND (1.2)	ND (1.2)	ND (3.7)	ND (1.2)	ND (0.50)	ND (2.1)	ND (0.12)	ND (0.11)	ND (2.2)	ND (1.1)	ND (0.15)	ND (5.7)	ND (1.6)	ND (0.16)	ND (0.34)	ND (0.57)
SW-846 8151A (µg/kg dry)																		
2,4-D	ND (570)	ND (290)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2,4-DB	ND (570)	ND (290)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2,4,5-TP (SILVEX)	ND (57)	ND (29)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2,4,5-T	ND (57)	ND (29)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
DALAPON	ND (1400)	ND (730)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
DICAMBA	ND (57)	ND (29)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
DICHLOROPROP	ND (570)	ND (290)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
DINOSEB	ND (290)	ND (150)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
MCPA	ND (57000)	ND (29000)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
MCPP	ND (57000)	ND (29000)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
SW-846 8270D (mg/Kg dry)																		
ACENAPHTHENE	0.56	2.6	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
ACENAPHTHYLENE	ND (0.39)	0.51	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
ACETOPHENONE	ND (0.78)	ND (0.41)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
ANILINE	ND (0.78)	ND (0.41)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
ANTHRACENE	0.98	5.7	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BENZO(A)ANTHRACENE	2.8	12	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BENZO(A)PYRENE	2.8	9.9	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BENZO(B)FLUORANTHENE	3.2	13	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BENZO(G,H,I)PERYLENE	2.0	4.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BENZO(K)FLUORANTHENE	1.1	4.4	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BIS(2-CHLOROETHOXY)METHANE	ND (0.78)	ND (0.41)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BIS(2-CHLOROETHYL)ETHER	ND (0.78)	ND (0.41)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BIS(2-CHLOROISOPROPYL)ETHER	ND (0.78)	ND (0.41)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BIS(2-ETHYLHEXYL)PHTHALATE	49	63	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
4-BROMOPHENYL PHENYL ETHER	ND (0.78)	ND (0.41)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BUTYLBENZYLPHTHALATE	1.0	0.53	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
4-CHLOROANILINE	ND (1.5)	ND (0.79)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-CHLORONAPHTHALENE	ND (0.78)	0.81	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-CHLOROPHENOL	ND (0.78)	ND (0.41)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
CHRYSENE	3.7	12	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
DIBENZ(A,H)ANTHRACENE	0.50	1.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
DIBENZOFURAN	ND (0.78)	2.1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
DI-N-BUTYLPHTHALATE	ND (0.78)	1.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-DICHLOROBENZENE	ND (0.78)	0.60	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,3-DICHLOROBENZENE	ND (0.78)	ND (0.41)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,4-DICHLOROBENZENE	ND (0.78)	1.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
3,3'-DICHLOROBENZIDINE	ND (0.39)	ND (0.20)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2,4-DICHLOROPHENOL	ND (0.78)	ND (0.41)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
DIETHYLPHTHALATE	ND (0.78)	ND (0.41)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2,4-DIMETHYLPHENOL	ND (0.78)	1.1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
DIMETHYLPHTHALATE	ND (0.78)	ND (0.41)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2,4-DINITROPHENOL	ND (1.5)	ND (0.79)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2,4-DINITROTOLUENE	ND (0.78)	ND (0.41)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2,6-DINITROTOLUENE	ND (0.78)	ND (0.41)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
DI-N-OCTYLPHTHALATE	ND (1.5)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-DIPHENYLHYDRAZINE (AZOBENZENE)	ND (0.78)	ND (0.41)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
FLUORANTHENE	5.1	29	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
FLUORENE	0.79	3.8	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
HEXACHLOROBENZENE	ND (0.78)	ND (0.41)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
HEXACHLOROBUTADIENE	ND (0.78)	ND (0.41)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
HEXACHLOROETHANE	ND (0.78)	ND (0.41)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
INDENO(1,2,3-CD)PYRENE	1.8	4.4	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
ISOPHORONE	ND (0.78)	1.6	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-METHYLNAPHTHALENE	0.86	1.9	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
O-CRESOL	ND (0.78)	0.49	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
M/P-CRESOL	1.1	1.6	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
NAPHTHALENE	1.1	2.3	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
NITROBENZENE	ND (0.78)	ND (0.41)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-NITROPHENOL	ND (0.78)	ND (0.41)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
4-NITROPHENOL	ND (1.5)	ND (0.79)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PENTACHLOROPHENOL	ND (0.78)	ND (0.41)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PHENANTHRENE	4.6	24	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PHENOL	ND (0.78)	1.3	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PYRENE	5.7	23	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2,4-TRICHLOROBENZENE	ND (0.78)	0.60	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2,4,5-TRICHLOROPHENOL	ND (0.78)	ND (0.41)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2,4,6-TRICHLOROPHENOL	ND (0.78)	ND (0.41)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Table 3
Soil Characterization Results
145-155 Beech Street, Chelsea, MA

Parameter	SAMPLING LOCATION																	
	PC-1	PC-2	A240	B240	B260	C260	D240	F180	J140	A60	A140	D60	F260	G120	G140	H280	I140	J100
SW-846 8260C (mg/Kg wet)																		
ACETONE	ND (11)	ND (2.8)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TERT-AMYLMETHYL ETHER	ND (0.11)	ND (0.028)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BENZENE	ND (0.22)	0.096	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BROMOBENZENE	ND (0.22)	ND (0.057)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BROMOCHLOROMETHANE	ND (0.22)	ND (0.057)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BROMODICHLOROMETHANE	ND (0.22)	ND (0.057)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BROMOFORM	ND (0.22)	ND (0.057)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
BROMOMETHANE	ND (0.43)	ND (0.11)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-BUTANONE (MEK)	ND (4.3)	ND (1.1)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
N-BUTYLBENZENE	ND (0.22)	0.057	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
SEC-BUTYLBENZENE	ND (0.22)	ND (0.057)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TERT-BUTYLBENZENE	ND (0.22)	ND (0.057)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TERT-BUTYLETHYL ETHER	ND (0.11)	ND (0.028)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
CARBON DISULFIDE	ND (2.2)	ND (0.57)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
CARBON TETRACHLORIDE	ND (0.22)	ND (0.057)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
CHLOROBENZENE	ND (0.22)	ND (0.057)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
CHLORODIBROMOMETHANE	ND (0.11)	ND (0.028)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
CHLOROETHANE	ND (0.43)	ND (0.11)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
CHLOROFORM	ND (0.43)	ND (0.11)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
CHLOROMETHANE	ND (0.43)	ND (0.11)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-CHLOROTOLUENE	ND (0.22)	ND (0.057)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
4-CHLOROTOLUENE	ND (0.22)	ND (0.057)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-DIBROMO-3-CHLOROPROPANE	ND (0.87)	ND (0.23)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-DIBROMOETHANE (EDB)	ND (0.11)	ND (0.028)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
DIBROMOMETHANE	ND (0.22)	ND (0.057)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-DICHLOROBENZENE	0.28	0.23	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,3-DICHLOROBENZENE	ND (0.22)	0.11	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,4-DICHLOROBENZENE	ND (0.22)	0.15	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
DICHLORODIFLUOROMETHANE	ND (0.43)	ND (0.11)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1-DICHLOROETHANE	ND (0.22)	ND (0.057)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-DICHLOROETHANE	ND (0.22)	ND (0.057)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1-DICHLOROETHYLENE	ND (0.22)	ND (0.057)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
CIS-1,2-DICHLOROETHYLENE	0.23	0.21	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TRANS-1,2-DICHLOROETHYLENE	ND (0.22)	0.075	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-DICHLOROPROPANE	ND (0.22)	ND (0.057)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-DICHLOROPROPANE	ND (0.22)	ND (0.057)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,3-DICHLOROPROPANE	ND (0.11)	ND (0.028)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2,2-DICHLOROPROPANE	ND (0.22)	ND (0.057)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1-DICHLOROPROPENE	ND (0.43)	ND (0.11)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
CIS-1,3-DICHLOROPROPENE	ND (0.11)	ND (0.028)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TRANS-1,3-DICHLOROPROPENE	ND (0.11)	ND (0.028)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
DIETHYL ETHER	ND (0.43)	0.15	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
DIISOPROPYL ETHER	ND (0.11)	ND (0.028)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,4-DIOXANE	ND (11)	ND (2.8)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
ETHYLBENZENE	0.91	0.99	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
HEXACHLOROBUTADIENE	ND (0.22)	ND (0.057)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-HEXANONE	ND (2.2)	ND (0.57)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
ISOPROPYLBENZENE	ND (0.22)	ND (0.057)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
P-ISOPROPYLTOLUENE	ND (0.22)	ND (0.057)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
METHYL TERT-BUTYL ETHER (MTBE)	ND (0.22)	ND (0.057)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
METHYLENE CHLORIDE	ND (1.1)	ND (0.28)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
4-METHYL-2-PENTANONE (MIBK)	ND (2.2)	ND (0.57)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
NAPHTHALENE	0.60	0.20	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
N-PROPYLBENZENE	ND (0.22)	0.12	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
STYRENE	ND (0.22)	0.12	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1,1,2-TETRACHLOROETHANE	ND (0.22)	ND (0.057)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1,2,2-TETRACHLOROETHANE	ND (0.11)	ND (0.028)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TETRACHLOROETHYLENE	ND (0.22)	ND (0.057)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TETRAHYDROFURAN	ND (0.87)	ND (0.23)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TOLUENE	1.3	1.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2,3-TRICHLOROBENZENE	ND (0.87)	ND (0.23)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2,4-TRICHLOROBENZENE	ND (0.22)	0.16	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1,1-TRICHLOROETHANE	ND (0.22)	ND (0.057)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1,2-TRICHLOROETHANE	ND (0.22)	ND (0.057)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TRICHLOROETHYLENE	0.28	0.31	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TRICHLOROFLUOROMETHANE	ND (0.43)	ND (0.11)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2,3-TRICHLOROPROPANE	ND (0.43)	ND (0.11)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2,4-TRIMETHYLBENZENE	0.42	0.29	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,3,5-TRIMETHYLBENZENE	ND (0.22)	ND (0.057)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
VINYL CHLORIDE	ND (0.43)	ND (0.11)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
M/P-XYLENE	2.8	1.5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
O-XYLENE	0.71	0.33	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
SW-846 9014 (mg/Kg)																		
REACTIVE CYANIDE	ND (4.0)	ND (3.9)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
SW-846 9030A (mg/Kg)																		
REACTIVE SULFIDE	ND (20)	ND (20)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
SW-846 9045C (pH Units)																		
PH	7.8	8.4	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

NOTES:
1. ND = Not detected above the lab reporting limits shown in parenthesis.
2. NT = Not tested.

Table 4 PCBs in Soil Above the Demarcation Fabric
145 - 155 Beech Street
Chelsea, MA

Parameter	MCP - Method 1 Cleanup Standards				SAMPLING LOCATION																
	S-1/GW-2 & S-1/GW-3	S-2/GW-2 & S-2/GW-3	S-3/GW-2 & S-3/GW-3	UCL	A140 6"	A140 10"	A200 6"	A200 10"	A320 6"	A400 6"	A400 10"	A420	A420	A480	A480	A560	A560	A600 6"	A600 10"	B60	B60	B100 6"	B100 9"	B360
Sampling Date					1/6/2015	1/7/2015	1/6/2015	1/7/2015	1/7/2015	1/7/2015	1/7/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	1/7/2015	1/7/2015	2/26/2015	2/26/2015	1/6/2015	1/6/2015	2/26/2015
Sample Depth					6- Inches	10- Inches	6- Inches	10- Inches	6- Inches	6- Inches	10- Inches	6- inches	18- inches	6- inches	18- inches	6- inches	30- inches	6- Inches	10- Inches	6- inches	18- inches	6- Inches	9- Inches	6- inches
SM 2540G (% Wt)																								
% Solids	~	~	~	~	92.2	88.3	84.1	90.2	88	85.6	86.0	94	84.2	89.4	97.7	93.7	95.6	82.6	91.5	92	95.1	93.1	93.1	93.5
SW-846 8082A (mg/Kg dry)																								
PCB 1016	1	3	4	100	ND (0.10)	ND (0.11)	ND (0.57)	ND (0.11)	**ND (2.2)**	**ND (2.3)**	ND (0.57)	**ND (1.1)**	**ND (5.8)**	**ND (2.2)**	ND (1.0)	**ND (2.1)**	ND (0.21)	ND (0.59)	**ND (11)**	ND (0.11)	ND (0.11)	ND (1.0)	**ND (1.1)**	**ND (2.1)**
PCB 1221	1	3	4	100	ND (0.10)	ND (0.11)	ND (0.57)	ND (0.11)	**ND (2.2)**	**ND (2.3)**	ND (0.57)	**ND (1.1)**	**ND (5.8)**	**ND (2.2)**	ND (1.0)	**ND (2.1)**	ND (0.21)	ND (0.59)	**ND (11)**	ND (0.11)	ND (0.11)	ND (1.0)	**ND (1.1)**	**ND (2.1)**
PCB 1232	1	3	4	100	ND (0.10)	ND (0.11)	ND (0.57)	ND (0.11)	**ND (2.2)**	**ND (2.3)**	ND (0.57)	**ND (1.1)**	**ND (5.8)**	**ND (2.2)**	ND (1.0)	**ND (2.1)**	ND (0.21)	ND (0.59)	**ND (11)**	ND (0.11)	ND (0.11)	ND (1.0)	**ND (1.1)**	**ND (2.1)**
PCB 1242	1	3	4	100	ND (0.10)	ND (0.11)	ND (0.57)	ND (0.11)	**ND (2.2)**	**ND (2.3)**	ND (0.57)	**ND (1.1)**	**ND (5.8)**	**ND (2.2)**	ND (1.0)	**ND (2.1)**	ND (0.21)	ND (0.59)	**ND (11)**	ND (0.11)	ND (0.11)	ND (1.0)	**ND (1.1)**	**ND (2.1)**
PCB 1248	1	3	4	100	ND (0.10)	ND (0.11)	ND (0.57)	ND (0.11)	**ND (2.2)**	**ND (2.3)**	ND (0.57)	**ND (1.1)**	**ND (5.8)**	**ND (2.2)**	ND (1.0)	**ND (2.1)**	ND (0.21)	ND (0.59)	**ND (11)**	ND (0.11)	ND (0.11)	ND (1.0)	**ND (1.1)**	**ND (2.1)**
PCB 1254	1	3	4	100	0.13	ND (0.11)	**3.2**	0.89	**19**	**13**	**4.6**	**9.1**	**29**	**18**	**5**	**13**	**1.4**	**2.9**	**71**	**1.1**	0.25	**9.8**	**11**	**14**
PCB 1260	1	3	4	100	ND (0.10)	ND (0.11)	0.71	0.21	**3.2**	**ND (2.3)**	ND (0.57)	**ND (1.1)**	**ND (5.8)**	**ND (2.2)**	ND (1.0)	**ND (2.1)**	0.24	ND (0.59)	**ND (11)**	0.19	ND (0.11)	ND (1.0)	**ND (1.1)**	**ND (2.1)**
PCB 1262	1	3	4	100	ND (0.10)	ND (0.11)	ND (0.57)	ND (0.11)	**ND (2.2)**	**ND (2.3)**	ND (0.57)	**ND (1.1)**	**ND (5.8)**	**ND (2.2)**	ND (1.0)	**ND (2.1)**	ND (0.21)	ND (0.59)	**ND (11)**	ND (0.11)	ND (0.11)	ND (1.0)	**ND (1.1)**	**ND (2.1)**
PCB 1268	1	3	4	100	ND (0.10)	ND (0.11)	ND (0.57)	ND (0.11)	**ND (2.2)**	**ND (2.3)**	ND (0.57)	**ND (1.1)**	**ND (5.8)**	**ND (2.2)**	ND (1.0)	**ND (2.1)**	ND (0.21)	ND (0.59)	**ND (11)**	ND (0.11)	ND (0.11)	ND (1.0)	**ND (1.1)**	**ND (2.1)**
Total	1	3	4	100	0.13	<0.055	**3.91**	**1.1**	**22.2**	**13**	**4.6**	**9.1**	**29**	**18**	**5**	**13**	**1.64**	**2.9**	**71**	**1.29**	0.25	**9.8**	**11**	**14**

Parameter	MCP - Method 1 Cleanup Standards				SAMPLING LOCATION																
	S-1/GW-2 & S-1/GW-3	S-2/GW-2 & S-2/GW-3	S-3/GW-2 & S-3/GW-3	UCL	B360	B520 6"	C40 6"	C120 6"	C120 12"	C160	C160	C200 6"	C280	C280	C300 6"	C300 10"	C320	C320	C360 6"	C380	C380	C440 6"	C480	C480
Sampling Date					2/26/2015	1/7/2015	1/6/2015	1/6/2015	1/6/2015	2/26/2015	2/26/2015	1/6/2015	2/26/2015	2/26/2015	1/7/2015	1/7/2015	2/26/2015	2/26/2015	1/6/2015	2/26/2015	2/26/2015	1/7/2015	2/26/2015	2/26/2015
Sample Depth					36- inches	6- Inches	6- Inches	6- Inches	12- Inches	6- inches	36- inches	6- Inches	6- inches	36- inches	6- Inches	10- Inches	6- inches	30- inches	6- Inches	6- inches	30- inches	6- Inches	6- inches	36- inches
SM 2540G (% Wt)																								
% Solids	~	~	~	~	96.2	91.8	84.6	83.8	86.1	90.4	90	88.8	91.9	92.1	86.3	89.9	91.9	92.8	90.2	95.5	99.5	93.2	91.5	97.1
SW-846 8082A (mg/Kg dry)																								
PCB 1016	1	3	4	100	ND (0.42)	**ND (2.2)**	ND (0.58)	**ND (1.2)**	ND (0.56)	ND (0.22)	ND (0.11)	**ND (1.1)**	ND (0.53)	**ND (5.4)**	**ND (1.1)**	**ND (1.1)**	**ND (5.3)**	**ND (2.2)**	**ND (2.2)**	**ND (5.1)**	ND (0.10)	**ND (2.1)**	**ND (1.1)**	ND (0.51)
PCB 1221	1	3	4	100	ND (0.42)	**ND (2.2)**	ND (0.58)	**ND (1.2)**	ND (0.56)	ND (0.22)	ND (0.11)	**ND (1.1)**	ND (0.53)	**ND (5.4)**	**ND (1.1)**	**ND (1.1)**	**ND (5.3)**	**ND (2.2)**	**ND (2.2)**	**ND (5.1)**	ND (0.10)	**ND (2.1)**	**ND (1.1)**	ND (0.51)
PCB 1232	1	3	4	100	ND (0.42)	**ND (2.2)**	ND (0.58)	**ND (1.2)**	ND (0.56)	ND (0.22)	ND (0.11)	**ND (1.1)**	ND (0.53)	**ND (5.4)**	**ND (1.1)**	**ND (1.1)**	**ND (5.3)**	**ND (2.2)**	**ND (2.2)**	**ND (5.1)**	ND (0.10)	**ND (2.1)**	**ND (1.1)**	ND (0.51)
PCB 1242	1	3	4	100	ND (0.42)	**ND (2.2)**	ND (0.58)	**ND (1.2)**	ND (0.56)	ND (0.22)	ND (0.11)	**ND (1.1)**	ND (0.53)	**ND (5.4)**	**ND (1.1)**	**ND (1.1)**	**ND (5.3)**	**ND (2.2)**	**ND (2.2)**	**ND (5.1)**	ND (0.10)	**ND (2.1)**	**ND (1.1)**	ND (0.51)
PCB 1248	1	3	4	100	**1.3**	**ND (2.2)**	ND (0.58)	**ND (1.2)**	ND (0.56)	ND (0.22)	ND (0.11)	**ND (1.1)**	ND (0.53)	**13**	**ND (1.1)**	**ND (1.1)**	**ND (5.3)**	**7.5**	**ND (2.2)**	**ND (5.1)**	0.5	**ND (2.1)**	**ND (1.1)**	ND (0.51)
PCB 1254	1	3	4	100	**2.4**	**20**	**3.8**	**6.9**	**3.3**	**1.4**	0.16	0.28	**3**	**24**	**5.9**	**9**	**20**	**14**	**20**	**26**	0.93	**13**	**5.5**	**2.5**
PCB 1260	1	3	4	100	ND (0.42)	**ND (2.2)**	ND (0.58)	**ND (1.2)**	**0.62**	ND (0.22)	ND (0.11)	**ND (1.1)**	ND (0.53)	**6**	**ND (1.1)**	**1.3**	**ND (5.3)**	**2.7**	**ND (2.2)**	**ND (5.1)**	0.14	**ND (2.1)**	**ND (1.1)**	ND (0.51)
PCB 1262	1	3	4	100	ND (0.42)	**ND (2.2)**	ND (0.58)	**ND (1.2)**	ND (0.56)	ND (0.22)	ND (0.11)	**ND (1.1)**	ND (0.53)	**ND (5.4)**	**ND (1.1)**	**ND (1.1)**	**ND (5.3)**	**ND (2.2)**	**ND (2.2)**	**ND (5.1)**	ND (0.10)	**ND (2.1)**	**ND (1.1)**	ND (0.51)
PCB 1268	1	3	4	100	ND (0.42)	**ND (2.2)**	ND (0.58)	**ND (1.2)**	ND (0.56)	ND (0.22)	ND (0.11)	**ND (1.1)**	ND (0.53)	**ND (5.4)**	**ND (1.1)**	**ND (1.1)**	**ND (5.3)**	**ND (2.2)**	**ND (2.2)**	**ND (5.1)**	ND (0.10)	**ND (2.1)**	**ND (1.1)**	ND (0.51)
Total	1	3	4	100	**3.7**	**20**	**3.8**	**6.9**	**3.92**	**1.4**	**0.16**	0.28	**3**	**43**	**5.9**	**10.3**	**20**	**24.2**	**20**	**26**	**1.57**	**13**	**5.5**	**2.5**

Parameter	MCP - Method 1 Cleanup Standards				SAMPLING LOCATION																		
	S-1/GW-2 & S-1/GW-3	S-2/GW-2 & S-2/GW-3	S-3/GW-2 & S-3/GW-3	UCL	C560 6"	C560	D100	D100	D260	D260	D440	D440	E40	E40	E80 6"	E120	E120	E160 6"	E240 6"	E320 6"	E360	E360	E400 6"	E400 12"
Sampling Date					2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	1/6/2015	2/26/2015	2/26/2015	1/6/2015	1/6/2015	1/7/2015	2/26/2015	2/26/2015	1/7/2015	1/7/2015
Sample Depth					6- inches	30- inches	6- inches	18- inches	6- inches	12- inches	6- inches	18- inches	6- inches	18- inches	6- Inches	6- inches	18- inches	6- Inches	6- Inches	6- Inches	6- inches	30- inches	6- Inches	12- Inches
SM 2540G (% Wt)																								
% Solids	~	~	~	~	83.4	94.4	90.6	91.1	88.6	90.3	91.9	95.5	86.9	86.1	80.5	87.4	85.7	90.6	87.8	89.6	91.9	77.6	90.3	90.3
SW-846 8082A (mg/Kg dry)																								
PCB 1016	1	3	4	100	**ND (24)**	ND (0.10)	ND (0.54)	**ND (2.2)**	ND (0.44)	**ND (1.1)**	**ND (5.3)**	ND (0.10)	**ND (23)**	**ND (5.6)**	**ND (1.2)**	ND (0.11)	**ND (1.2)**	ND (0.11)	ND (0.11)	**ND (2.1)**	**ND (2.2)**	**ND (2.6)**	**ND (1.1)**	**ND (1.1)**
PCB 1221	1	3	4	100	**ND (24)**	ND (0.10)	ND (0.54)	**ND (2.2)**	ND (0.44)	**ND (1.1)**	**ND (5.3)**	ND (0.10)	**ND (23)**	**ND (5.6)**	**ND (1.2)**	ND (0.11)	**ND (1.2)**	ND (0.11)	ND (0.11)	**ND (2.1)**	**ND (2.2)**	**ND (2.6)**	**ND (1.1)**	**ND (1.1)**
PCB 1232	1	3	4	100	**ND (24)**	ND (0.10)	ND (0.54)	**ND (2.2)**	ND (0.44)	**ND (1.1)**	**ND (5.3)**	ND (0.10)	**ND (23)**	**ND (5.6)**	**ND (1.2)**	ND (0.11)	**ND (1.2)**	ND (0.11)	ND (0.11)	**ND (2.1)**	**ND (2.2)**	**ND (2.6)**	**ND (1.1)**	**ND (1.1)**
PCB 1242	1	3	4	100	**ND (24)**	ND (0.10)	ND (0.54)	**ND (2.2)**	ND (0.44)	**ND (1.1)**	**ND (5.3)**	ND (0.10)	**ND (23)**	**ND (5.6)**	**ND (1.2)**	ND (0.11)	**ND (1.2)**	ND (0.11)	ND (0.11)	**ND (2.1)**	**ND (2.2)**	**ND (2.6)**	**ND (1.1)**	**ND (1.1)**
PCB 1248	1	3	4	100	**ND (24)**	ND (0.10)	ND (0.54)	**8.8**	**1.3**	**4.2**	**ND (5.3)**	ND (0.10)	**ND (23)**	**ND (5.6)**	**ND (1.2)**	ND (0.11)	**ND (1.2)**	ND (0.11)	ND (0.11)	**ND (2.1)**	**ND (2.2)**	**9.5**	**ND (1.1)**	**ND (1.1)**
PCB 1254	1	3	4	100	**150**	0.29	**3.4**	**21**	**3.3**	**9.5**	**27**	ND (0.10)	**260**	**33**	**8.1**	**1.2**	**7.3**	**1.3**	**1**	**21**	**23**	**16**	**5.1**	**9.3**
PCB 1260	1	3	4	100	**ND (24)**	ND (0.10)	ND (0.54)	**3.1**	ND (0.44)	**ND (1.1)**	**ND (5.3)**	ND (0.10)	**ND (23)**	**ND (5.6)**	**ND (1.2)**	ND (0.11)	**ND (1.2)**	0.26	0.19	**2.3**	**ND (2.2)**	**5.2**	**2**	**2.7**
PCB 1262	1	3	4	100	**ND (24)**	ND (0.10)	ND (0.54)	**ND (2.2)**	ND (0.44)	**ND (1.1)**	**ND (5.3)**	ND (0.10)	**ND (23)**	**ND (5.6)**	**ND (1.2)**	ND (0.11)	**ND (1.2)**	ND (0.11)	ND (0.11)	**ND (2.1)**	**ND (2.2)**	**ND (2.6)**	**ND (1.1)**	**ND (1.1)**
PCB 1268	1	3	4	100	**ND (24)**	ND (0.10)	ND (0.54)	**ND (2.2)**	ND (0.44)	**ND (1.1)**	**ND (5.3)**	ND (0.10)	**ND (23)**	**ND (5.6)**	**ND (1.2)**	ND (0.11)	**ND (1.2)**	ND (0.11)	ND (0.11)	**ND (2.1)**	**ND (2.2)**	**ND (2.6)**	**ND (1.1)**	**ND (1.1)**
Total	1	3	4	100	**150**	0.29	**3.4**	**32.9**	**4.6**	**13.7**	**27**	<0.05	**260**	**33**	**8.1**	**1.2**	**7.3**	**1.56**	**1.19**	**23.3**	**23**	**30.7**	**7.1**	**12**

Table 4 PCBs in Soil Above the Demarcation Fabric
145 - 155 Beech Street
Chelsea, MA

Parameter	MCP - Method 1 Cleanup Standards				SAMPLING LOCATION																	
	S-1/GW-2 & S-1/GW-3	S-2/GW-2 & S-2/GW-3	S-3/GW-2 & S-3/GW-3	UCL	F200	F200	F280	F280	G40 6"	G40 18"	G80	G80	G120 6"	G160	G160	G200 6"	G260	G260	G280 6"	H80	H80	H220	H220	I80 6"
Sampling Date					2/26/2015	2/26/2015	2/26/2015	2/26/2015	1/6/2015	1/6/2015	2/26/2015	2/26/2015	1/7/2015	2/26/2015	2/26/2015	1/7/2015	2/26/2015	2/26/2015	1/7/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	1/7/2015
Sample Depth					6- inches	36- inches	6- inches	36- inches	6- Inches	18- Inches	6- inches	18- inches	6- Inches	6- inches	18- inches	6- Inches	6- inches	12- inches	6- Inches	6- inches	36- inches	6- inches	18- inches	6- Inches
SM 2540G (% Wt)																								
% Solids	~	~	~	~	89.2	37.8	81.2	74.4	N/A	N/A	90.5	94.3	85.5	87.7	93.6	83.6	87.9	86.5	85.6	92.1	94.3	85.9	88.2	86.5
SW-846 8082A (mg/Kg dry)																								
PCB 1016	1	3	4	100	**ND (2.2)**	**ND (2.6)**	**ND (1.2)**	ND (0.13)	ND (0.099)	ND (0.10)	**ND (2.2)**	ND (0.10)	**ND (2.2)**	ND (0.46)	**ND (2.1)**	ND (0.12)	ND (0.45)	**ND (5.7)**	**ND (1.2)**	ND (0.11)	ND (0.11)	ND (0.12)	**ND (5.6)**	**ND (5.7)**
PCB 1221	1	3	4	100	**ND (2.2)**	**ND (2.6)**	**ND (1.2)**	ND (0.13)	ND (0.099)	ND (0.10)	**ND (2.2)**	ND (0.10)	**ND (2.2)**	ND (0.46)	**ND (2.1)**	ND (0.12)	ND (0.45)	**ND (5.7)**	**ND (1.2)**	ND (0.11)	ND (0.11)	ND (0.12)	**ND (5.6)**	**ND (5.7)**
PCB 1232	1	3	4	100	**ND (2.2)**	**ND (2.6)**	**ND (1.2)**	ND (0.13)	ND (0.099)	ND (0.10)	**ND (2.2)**	ND (0.10)	**ND (2.2)**	ND (0.46)	**ND (2.1)**	ND (0.12)	ND (0.45)	**ND (5.7)**	**ND (1.2)**	ND (0.11)	ND (0.11)	ND (0.12)	**ND (5.6)**	**ND (5.7)**
PCB 1242	1	3	4	100	**ND (2.2)**	**ND (2.6)**	**ND (1.2)**	ND (0.13)	ND (0.099)	ND (0.10)	**ND (2.2)**	ND (0.10)	**ND (2.2)**	ND (0.46)	**ND (2.1)**	ND (0.12)	ND (0.45)	**ND (5.7)**	**ND (1.2)**	ND (0.11)	ND (0.11)	ND (0.12)	**ND (5.6)**	**ND (5.7)**
PCB 1248	1	3	4	100	**ND (2.2)**	**ND (2.6)**	**ND (1.2)**	ND (0.13)	ND (0.099)	ND (0.10)	**10**	ND (0.10)	**ND (2.2)**	ND (0.46)	**ND (2.1)**	ND (0.12)	ND (0.45)	**ND (5.7)**	**ND (1.2)**	ND (0.11)	ND (0.11)	ND (0.12)	**ND (5.6)**	**ND (5.7)**
PCB 1254	1	3	4	100	**12**	**8.4**	**5**	ND (0.13)	ND (0.099)	0.44	**26**	0.27	**18**	**2.9**	**15**	0.9	**3.2**	**31**	**8**	1	ND (0.11)	**1.2**	**39**	**36**
PCB 1260	1	3	4	100	**ND (2.2)**	**ND (2.6)**	**ND (1.2)**	ND (0.13)	ND (0.099)	ND (0.10)	**3.4**	ND (0.10)	**ND (2.2)**	ND (0.46)	**ND (2.1)**	0.13	ND (0.45)	**ND (5.7)**	**1.2**	0.16	ND (0.11)	0.19	**ND (5.6)**	**ND (5.7)**
PCB 1262	1	3	4	100	**ND (2.2)**	**ND (2.6)**	**ND (1.2)**	ND (0.13)	ND (0.099)	ND (0.10)	**ND (2.2)**	ND (0.10)	**ND (2.2)**	ND (0.46)	**ND (2.1)**	ND (0.12)	ND (0.45)	**ND (5.7)**	**ND (1.2)**	ND (0.11)	ND (0.11)	ND (0.12)	**ND (5.6)**	**ND (5.7)**
PCB 1268	1	3	4	100	**ND (2.2)**	**ND (2.6)**	**ND (1.2)**	ND (0.13)	ND (0.099)	ND (0.10)	**ND (2.2)**	ND (0.10)	**ND (2.2)**	ND (0.46)	**ND (2.1)**	ND (0.12)	ND (0.45)	**ND (5.7)**	**ND (1.2)**	ND (0.11)	ND (0.11)	ND (0.12)	**ND (5.6)**	**ND (5.7)**
Total	1	3	4	100	**12**	**8.4**	**5**	<0.065	<0.0495	0.44	**39.4**	0.27	**18**	**2.9**	**15**	**1.03**	**3.2**	**31**	**9.2**	**1.16**	<0.055	**1.39**	**39**	**36**

Parameter	MCP - Method 1 Cleanup Standards				SAMPLING LOCATION					
	S-1/GW-2 & S-1/GW-3	S-2/GW-2 & S-2/GW-3	S-3/GW-2 & S-3/GW-3	UCL	I100	I100	I160 6"	I160 10"	F160	E180
Sampling Date					2/26/2015	2/26/2015	1/7/2015	1/7/2015	1/6/2015	1/6/2015
Sample Depth					6- inches	12- inches	6- Inches	10- Inches	Stockpile	Stockpile
SM 2540G (% Wt)										
% Solids	~	~	~	~	80.6	88.8	79.9	82.7	N/A	N/A
SW-846 8082A (mg/Kg dry)										
PCB 1016	1	3	4	100	**ND (12)**	**ND (1.1)**	ND (0.12)	ND (0.12)	ND (0.10)	ND (0.10)
PCB 1221	1	3	4	100	**ND (12)**	**ND (1.1)**	ND (0.12)	ND (0.12)	ND (0.10)	ND (0.10)
PCB 1232	1	3	4	100	**ND (12)**	**ND (1.1)**	ND (0.12)	ND (0.12)	ND (0.10)	ND (0.10)
PCB 1242	1	3	4	100	**ND (12)**	**ND (1.1)**	ND (0.12)	ND (0.12)	ND (0.10)	ND (0.10)
PCB 1248	1	3	4	100	**ND (12)**	**ND (1.1)**	ND (0.12)	ND (0.12)	ND (0.10)	ND (0.10)
PCB 1254	1	3	4	100	**96**	**10**	0.45	0.59	ND (0.10)	ND (0.10)
PCB 1260	1	3	4	100	**ND (12)**	**ND (1.1)**	ND (0.12)	ND (0.12)	ND (0.10)	ND (0.10)
PCB 1262	1	3	4	100	**ND (12)**	**ND (1.1)**	ND (0.12)	ND (0.12)	ND (0.10)	ND (0.10)
PCB 1268	1	3	4	100	**ND (12)**	**ND (1.1)**	ND (0.12)	ND (0.12)	ND (0.10)	ND (0.10)
Total	1	3	4	100	**96**	**10**	0.45	0.59	0	0

NOTES:

1. ND = Not detected above the lab reporting limits shown in parenthesis.
2. NT = Not tested.
3. ~ = No Method 1 Standard or UCL available
4. Bolded values exceed the Method 1 S-1 Standards.

Table 5
Groundwater Analytical Results - Metals, EPH, VPH, PAHs, and VOCs (ug/l)
145-155 Beach Street, Chelsea, MA

CDW Sample ID	DW-1	DW-1R	DW-2			Method 1 Standard GW-2	Method 1 Standard GW-3
Date:	10/30/14*	3/6/15	10/30/14	12/16/14	3/6/15		
PCB's							
PCB 1016	<0.20	<0.20	*<0.20*	NT	*<0.20*	5	10
PCB 1221	<0.20	<0.20	*<0.20*	NT	*<0.20*	5	10
PCB 1232	<0.20	<0.20	*<0.20*	NT	*<0.20*	5	10
PCB 1242	<0.20	<0.20	*<0.20*	NT	*<0.20*	5	10
PCB 1248	0.72	*<0.20*	*<0.20*	NT	*<0.20*	5	10
PCB 1254	1.6	*<0.20*	*<0.20*	NT	*<0.20*	5	10
PCB 1260	*<0.20*	*<0.20*	*<0.20*	NT	*<0.20*	5	10
PCB 1262	*<0.20*	*<0.20*	*<0.20*	NT	*<0.20*	5	10
PCB 1268	*<0.20*	*<0.20*	*<0.20*	NT	*<0.20*	5	10
Total PCB's	2.32	*<0.20*	*<0.20*	*NT*	*<0.20*	5	10
Dissolved Metals							
Antimony	*<1.0*	*<50*	*<1.0*	NT	*<50*	NS	8,000
Arsenic	8.3	*<10*	8.2	NT	*<10*	NS	900
Barium	NT	120	NT	NT	280	NS	50,000
Beryllium	*<0.40*	NT	*<0.40*	NT	NT	NS	200
Cadmium	*<0.50*	*<4.0*	*<0.50*	NT	*<4.0*	NS	4
Chromium	5.7	<10	7.4	NT	*<20*	NS	300
Copper	13	NT	18	NT	NT	NS	NS
Lead	**26**	*<10*	**25**	*<10*	*<10*	NS	10
Mercury	*<0.00010*	*NT*	*<0.00010*	NT	*NT*	NS	20
Nickel	15	*<10*	15	NT	*<10*	NS	200
Selenium	8.5	NT	8.1	NT	NT	NS	100
Silver	*<0.50*	NT	*<0.50*	NT	NT	NS	7
Thallium	*<0.20*	NT	*<0.20*	NT	NT	NS	3,000
Vanadium	NT	*<10*	NT	NT	*<10*	NS	4,000
Zinc	32	*<20*	33	NT	*<20*	NS	900
VPH							
C5-C8 Aliphatics	*<100*	*<200*	*<100*	NT	*<200*	3,000	50,000
C9-C12 Aliphatics	*<100*	*<200*	*<100*	NT	*<200*	5,000	50,000
C9-C10 Aromatics	*<100*	*<200*	*<100*	NT	*<200*	4,000	50,000
Benzene	*<1.0*	*<2.0*	*<1.0*	NT	*<2.0*	1,000	10,000
Ethylbenzene	*<1.0*	*<2.0*	*<1.0*	NT	*<2.0*	20,000	5,000
Methyl tert-butyl ether	*<1.0*	*<2.0*	*<1.0*	NT	*<2.0*	50,000	50,000
Naphthalene	*<5.0*	*<10*	*<5.0*	NT	*<10*	700	20,000
Toluene	*<1.0*	*<2.0*	1.6	NT	*<2.0*	50,000	40,000
M/P-Xylene	*<2.0*	*<4.0*	*<2.0*	NT	*<4.0*	3,000	5,000
O-Xylene	*<1.0*	*<2.0*	*<1.0*	NT	*<2.0*	3,000	5,000
EPH (5/2004R)							
C9-C18 Aliphatics	*<100*	*<100*	NT	NT	*<100*	5,000	50,000
C19-C36 Aliphatics	220	*<100*	NT	NT	*<100*	NS	50,000
C11-C22 Aromatics	*<100*	*<100*	NT	NT	*<100*	50,000	5,000
Acenaphthene	*<2.0*	NT	NT	NT	NT	NS	10,000
Acenaphthylene	*<2.0*	NT	NT	NT	NT	10,000	40
Anthracene	*<2.0*	NT	NT	NT	NT	NS	30
Benzo(a)anthracene	*<2.0*	NT	NT	NT	NT	NS	1,000
Benzo(a)pyrene	*<2.0*	NT	NT	NT	NT	NS	500
Benzo(b)fluoranthene	*<2.0*	NT	NT	NT	NT	NS	400
Benzo(g,h,i)perylene	*<2.0*	NT	NT	NT	NT	NS	20
Benzo(k)fluoranthene	*<2.0*	NT	NT	NT	NT	NS	100
Chrysene	*<2.0*	NT	NT	NT	NT	NS	70
Dibenz(a,h)anthracene	*<2.0*	NT	NT	NT	NT	NS	NS
Fluoranthene	*<2.0*	NT	NT	NT	NT	NS	200
Fluorene	*<2.0*	NT	NT	NT	NT	NS	40
Indeno(1,2,3-cd)pyrene	*<2.0*	NT	NT	NT	NT	NS	100
2-Methylnaphthalene	*<2.0*	NT	NT	NT	NT	2,000	20,000
Naphthalene	*<2.0*	NT	NT	NT	NT	700	20,000
Phenanthrene	*<2.0*	NT	NT	NT	NT	NS	10,000
Pyrene	*<2.0*	NT	NT	NT	NT	NS	20
Water Quality							
DTW (ft)	3.5	4.4	2.5	NT	2.8		
DTB (ft)	10	10	10	10	10		
pH	7.29	7.19	7.32	NT	7.26		
Temperature (^{o}C)	12.48	3.6	12.93	NT	3.2		
Sp. Conductance (µs/cm)	5758	4926	15482	NT	14381		

Results in micrograms/liter
NS = No standard established
* Dup collected here. Result displayed is highest of either sample or dup.
DTW = Depth to Groundwater
DTB = Depth to Bottom of Well
Depth of riser above ground surface subtracted from value
NT = Not Tested
Bold indicates that concentration is above MCP Method 1 GW-2 and/or GW-3 Standard
PCB and EPH samples collected 3/6/15 were filtered

Table 6 PCBs in Surface Water
145 - 155 Beech Street
Chelsea, MA

Parameter	Reportable Concentrations (RCs)	MCP - Method 1 Cleanup Standards			SAMPLING LOCATION			
	RCGW-2	GW-2	GW-3	UCL	A160	A160 - Filtered	G40	G40 - Filtered
Sampling Date					1/6/2015	1/6/2015	1/6/2015	1/6/2015
SW-846 8082A (µg/L)								
PCB 1016	5	5	10	100	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)
PCB 1221	5	5	10	100	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)
PCB 1232	5	5	10	100	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)
PCB 1242	5	5	10	100	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)
PCB 1248	5	5	10	100	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)
PCB 1254	5	5	10	100	0.45	ND (0.20)	0.48	ND (0.20)
PCB 1260	5	5	10	100	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)
PCB 1262	5	5	10	100	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)
PCB 1268	5	5	10	100	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)

NOTES:
1. An asterisk (*) following a detection limit indicates that the minimum laboratory reporting limit exceeds one or more of the regulatory criteria.
2. ND = Not detected above the lab reporting limits shown in parenthesis.
3. NT = Not tested.
4. ~ = No Method 1 Standard or UCL available
5. Bolded values exceed the applicable Method 1 Cleanup Standards.

Table 7 Metals in Soil above the Demarcation Fabric
145 - 155 Beech Street
Chelsea, MA

Parameter	MCP - Method 1 Cleanup Standards				SAMPLING LOCATION																				EPC
	S-1/GW-2 & S-1/GW-3	S-2/GW-2 & S-2/GW-3	S-3/GW-2 & S-3/GW-3	UCL	A560	A560	B360	B360	C280	C280	C380	C380	D-100	D-100	D-260	D-260	G-80	G-80	G-160	G-160	G-260	G-260	H-220	H-220	H-80	H-80	
Sampling Date					2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	
Sample Depth					6- inches	30- inches	6- inches	36- inches	6- inches	36- inches	6- inches	30- inches	6- inches	18- inches	6- inches	12- inches	6- inches	18- inches	6- inches	18- inches	6- inches	12- inches	6- inches	18- inches	6- inches	36- inches	
SW-846 6010C (mg/Kg dry) Metals Digestion																											
ANTIMONY	20	30	30	300	*<1.3*	*<1.3*	5.4	*<1.25*	*<1.3*	7	*<1.35*	*<1.3*	4.3	*<1.45*	**36**	*<1.3*	7.7	18	NT	NT	NT	NT	*<1.4*	*<1.4*	*<1.35*	*<1.35*	5.2
ARSENIC	20	20	50	500	*<1.3*	*<1.3*	3.1	*<1.25*	*<1.3*	*<1.45*	*<1.35*	*<1.3*	*<1.3*	*<1.45*	*<1.3*	*<1.3*	*<1.45*	*<1.25*	NT	NT	NT	NT	*<1.4*	*<1.4*	*<1.35*	*<1.35*	1.4
BARIUM	1000	3000	5000	10000	43	59	150	110	170	580	150	62	95	220	100	96	130	490	NT	NT	NT	NT	190	290	75	15	168.1
CADMIUM	70	30	100	1000	0.45	0.42	3.3	5.1	1.3	5.6	2.6	0.35	0.91	2.7	1	2	1.7	6.9	NT	NT	NT	NT	1.1	4.9	0.61	*<1.35*	2.3
CHROMIUM	100	200	200	2000	77	14	31	54	24	99	29	12	27	38	22	31	20	69	NT	NT	NT	NT	21	57	18	9.5	36.3
LEAD	200	300	600	6000	26	48	**250**	110	**350**	**670**	**270**	49	150	**450**	170	160	**220**	**610**	NT	NT	NT	NT	**400**	**440**	110	5	**249.3**
NICKEL	600	1000	1000	10000	19	6.1	18	18	26	26	16	7.5	18	21	15	19	8.4	14	NT	NT	NT	NT	16	25	11	5.9	16.1
VANADIUM	400	700	700	7000	16	12	30	16	35	51	27	15	28	28	40	30	16	33	NT	NT	NT	NT	45	33	21	20	27.6
ZINC	1000	3000	5000	10000	39	55	260	160	460	**1200**	320	67	220	440	220	220	200	720	NT	NT	NT	NT	470	530	98	36	317.5

NOTES:
1. The < symbol indicates that the analytes was not detected above the lab reporting limits, half the lab reporting limits are shown
2. NT = Not tested.
3. ~ = No Method 1 Standard or UCL available
4. Bolded values exceed the Method 1 Cleanup Standards.

Table 8 EPH VPH in Soil above the Demarcation Fabric
145 - 155 Beech Street
Chelsea, MA

Parameter	MCP - Method 1 Cleanup Standards							SAMPLING LOCATION																EPC
	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	S-3/GW-2	S-3/GW-3	UCL	A560	A560	B360	B360	C280	C280	C380	C380	D-100	D-100	D-260	D-260	G-80	G-80	H-220	H-220	H-80	H-80	
Sampling Date								2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	
Sample Depth								6- inches	30- inches	6- inches	36- inches	6- inches	36- inches	6- inches	30- inches	6- inches	18- inches	6- inches	12- inches	6- inches	18- inches	6- inches	18- inches	6- inches	36- inches	
MADEP-EPH-04-1.1 (mg/Kg dry)																										
C9-C18 ALIPHATICS	1000	1000	3000	3000	5000	5000	20000	*<5.5*	11	*<26.5*	29	13	130	18	13	*<5.5*	63	*<5.5*	24	36	270	14	85	13	*<5.5*	42.6
C19-C36 ALIPHATICS	3000	3000	5000	5000	5000	5000	20000	35	35	650	250	66	560	310	110	60	370	49	150	340	760	82	610	110	*<5.5*	252.9
C11-C22 AROMATICS	1000	1000	3000	3000	5000	5000	10000	26	32	610	73	210	360	150	47	150	280	49	150	160	560	120	490	67	*<5.5*	196.6
MADEP-VPH-04-1.1 (mg/Kg dry)																										
C5-C8 ALIPHATICS	100	100	500	500	500	500	5000	*<3.4*	*<2.55*	*<4.15*	*<3.5*	*<3.8*	*<4.65*	*<4.4*	*<3.2*	*<4.6*	*<5.5*	*<3.55*	*<4.5*	*<4.55*	*<3.95*	*<4.95*	*<4.85*	*<3.45*	*<2.8*	ND
C9-C12 ALIPHATICS	1000	1000	3000	3000	5000	5000	20000	*<3.4*	*<2.55*	*<4.15*	*<3.5*	*<3.8*	*<4.65*	*<4.4*	*<3.2*	*<4.6*	*<5.5*	*<3.55*	*<4.5*	*<4.55*	*<3.95*	*<4.95*	*<4.85*	*<3.45*	*<2.8*	ND
C9-C10 AROMATICS	100	100	500	500	500	500	5000	*<3.4*	*<2.55*	*<4.15*	*<3.5*	*<3.8*	23	*<4.4*	*<3.2*	*<4.6*	*<5.5*	*<3.55*	*<4.5*	*<4.55*	8	*<4.95*	10	*<3.45*	*<2.8*	5.6
BENZENE	40	40	200	200	400	1000	10000	*<0.017*	*<0.0125*	0.05	*<0.0175*	*<0.019*	0.31	*<0.022*	*<0.016*	*<0.023*	*<0.028*	*<0.0175*	0.051	0.06	*<0.02*	*<0.0245*	0.056	*<0.017*	*<0.014*	0.043
ETHYLBENZENE	500	500	1000	1000	1000	3000	10000	*<0.017*	*<0.0125*	0.21	0.041	*<0.019*	0.65	0.16	*<0.016*	*<0.023*	0.3	*<0.0175*	0.17	0.36	0.27	*<0.0245*	1.8	*<0.017*	*<0.014*	0.2
METHYL TERT-BUTYL ETHER (MTBE)	100	100	100	500	100	500	5000	*<0.017*	*<0.0125*	*<0.021*	*<0.0175*	*<0.019*	*<0.023*	*<0.022*	*<0.016*	*<0.023*	*<0.028*	*<0.0175*	*<0.0225*	*<0.023*	*<0.02*	*<0.0245*	*<0.024*	*<0.017*	*<0.014*	ND
NAPHTHALENE	20	500	20	1000	20	3000	10000	*<0.085*	*<0.065*	0.36	*<0.09*	*<0.095*	0.63	0.24	*<0.08*	*<0.115*	0.47	*<0.09*	0.34	0.25	0.2	*<0.125*	0.46	*<0.085*	*<0.07*	0.2
TOLUENE	500	500	1000	1000	2000	3000	10000	*<0.017*	0.067	0.34	0.074	0.066	0.66	0.22	*<0.016*	*<0.023*	0.23	0.073	0.21	0.34	0.48	0.056	6.2	*<0.017*	*<0.014*	0.5
M/P-XYLENE	100	500	300	1000	100	3000	10000	*<0.034*	*<0.0255*	0.49	0.081	*<0.038*	0.78	0.25	*<0.032*	*<0.046*	0.36	*<0.0355*	0.26	0.43	0.43	*<0.0495*	12	*<0.0345*	*<0.028*	0.9
O-XYLENE	100	500	300	1000	100	3000	10000	*<0.017*	*<0.0125*	0.15	*<0.0175*	*<0.019*	0.2	0.081	*<0.016*	*<0.023*	0.21	*<0.0175*	0.089	0.15	0.21	*<0.0245*	4	*<0.017*	*<0.014*	0.3

NOTES:
1. The < symbol indicates that the analytes was not detected above the lab reporting limits, half the lab reporting limits are shown
2. NT = Not tested.
3. ~ = No Method 1 Standard or UCL available
4. Bolded values exceed the Method 1 Cleanup Standards.

APPENDIX A

Site Construction Plans

CITY OF CHELSEA
(B) BUSINESS DISTRICT

ITEM	EXISTING	REQUIRED/ ALLOWED	PROPOSED
LOT AREA (MIN)	1.75± ACRES	1.0 ACRE	1.75± ACRES
FRONTAGE (MIN)	600.64'	150'	600.64'
FLOOR AREA RATIO (MAX)	N/A	2	1.35
BUILDING HEIGHT (MAX)	N/A	100'/8 STORIES	60'±/5 STORIES
FRONT YARD SETBACK (MIN)	N/A	10'	10.0'
SIDE YARD SETBACK (MIN)	N/A	0	9.1'
REAR YARD SETBACK (MIN)	N/A	20'	55'
PERCENT LOT COVER (MAX)	N/A	N/A	29%
DISTANCE BETWEEN ACCESS POINTS TO THE SAME LOT (MIN)	36'±	100'	121'

SPECIAL PERMIT REQUIRED FOR

SECTION 34-49.c MAJOR COMMERCIAL PROJECT
ANY NONRESIDENTIAL DEVELOPMENT OR USE HAVING 25,000 S.F. OR MORE OF GROSS FLOOR AREA
SITE IS CONSIDERED A "MAJOR COMMERCIAL PROJECT" AND REQUIRES A SPECIAL PERMIT, AND MAJOR SITE PLAN REVIEW.

SECTION 34-106.d.2
TO ALLOW OFF-STREET PARKING TO BE LOCATED IN THE REQUIRED FRONT YARD SETBACK (10 FEET).

SECTION 34-106
TO ALLOW VALET PARKING TO BE LOCATED WITHIN AISLES IN PARKING LOT.

OFF STREET PARKING SUMMARY

USE: HOTEL, MOTEL, INN OR CLUB (SEE NOTE 1)(ORDINANCE SECTION 5.1.2)
1 SPACE FOR EVERY 2 BEDROOMS (152 GUESTROOM) = 76
PLUS 3 SPACES FOR EACH 200 S.F. FLOOR AREA AVAILABLE FOR MEETINGS AND FUNCTIONS (2,532 S.F.) = 38
AND 1 SPACE FOR EACH 4 EMPLOYEES ON THE LARGEST SHIFT (20EMP) = 5
PLUS 1 SPACE FOR EACH 3 RESTAURANT/BAR SEATS (86 SEATS / 3) = 29

SITE TOTAL OFF-STREET PARKING REQUIRED = 148 SPACES

ADA REQUIRED: 4 TOTAL PARKING STALLS SHALL BE ACCESSIBLE (MINIMUM OF 1 ACCESSIBLE STALL BE VAN ACCESSIBLE)

ADA PROVIDED: 5 TOTAL ACCESSIBLE PARKING STALLS ARE PROVIDED (1 IS VAN ACCESSIBLE)

	STANDARD (9'x18')	ADA ACCESSIBLE	COMPACT (8'x15')	VALET (9'x18')	TOTAL PROVIDED
TOTAL SITE PARKING	82	5	38	32	157

NOTE
1. PARKING CALCULATIONS BASED UPON 152 BEDROOMS WITH 2,532 S.F. OF FLOOR AREA AVAILABLE FOR MEETINGS AND FUNCTIONS, AND A MAXIMUM OF 20 EMPLOYEES ON THE LARGEST SHIFT.

PLAN NOTES:

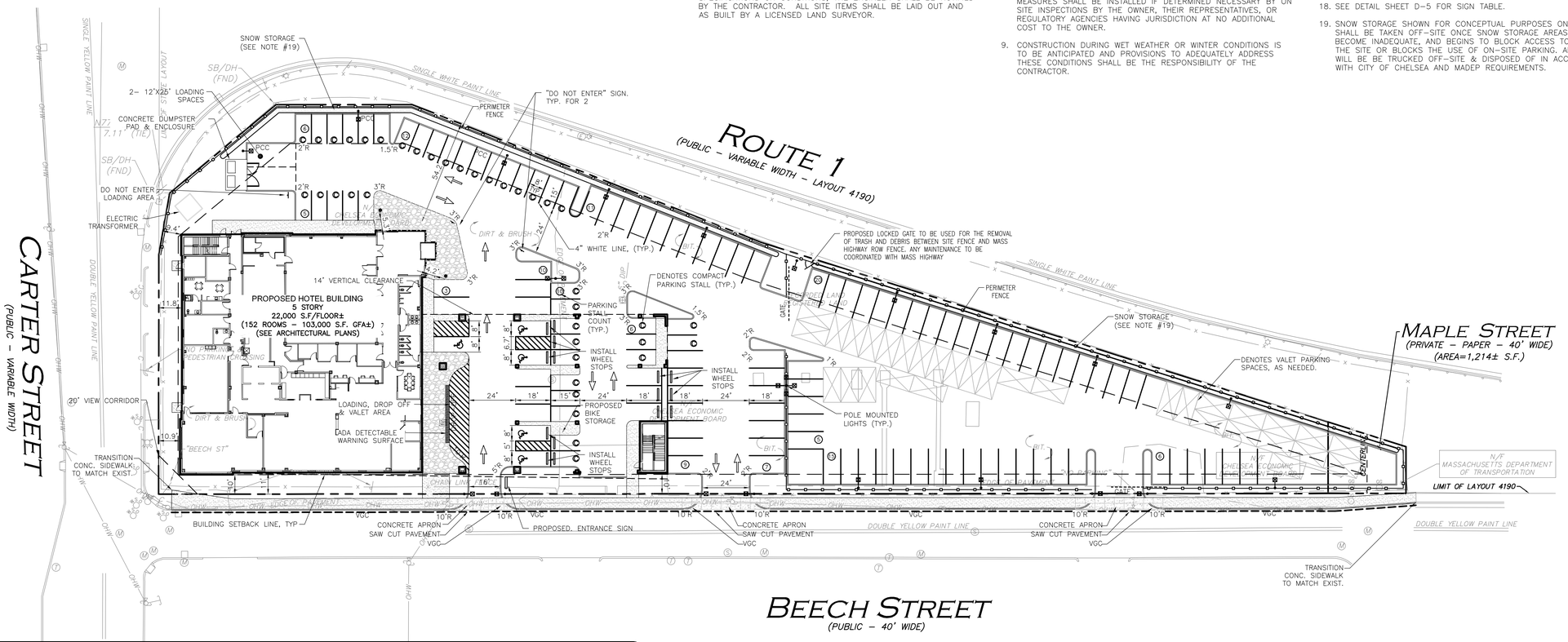
1. EXISTING CONDITIONS WERE COMPILED FROM AN ON THE GROUND SURVEY PERFORMED BY ALLEN & MAJOR ASSOCIATES AS WELL AS AVAILABLE RECORD PLANS OBTAINED FROM THE CITY OF CHELSEA, MA ENGINEERING DEPARTMENT AND OTHER SOURCES.
2. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.
3. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK. THE CONTRACTOR SHALL ALSO CONTACT THE CITY OF CHELSEA, MA DEPARTMENT OF PUBLIC WORKS AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF LOCAL UTILITIES.
4. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS

LAYOUT NOTES:

1. CURB RADII SHALL BE AS SHOWN ON THE PLAN, THOUGH TYPICALLY 10-FT. AT CORNERS AND 2-FT. ADJACENT TO PARKING STALLS.
2. ALL DIMENSIONS AND RADII ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
3. WRITTEN DIMENSIONS ON THIS PLAN TAKE PRECEDENCE OVER SCALED DIMENSIONS. THE CONTRACTOR SHALL USE CAUTION WHEN SCALING REPRODUCED PLANS. IN THE EVENT OF A CONFLICT BETWEEN THIS PLAN SET AND ANY OTHER DRAWINGS AND/OR SPECIFICATIONS OR CONDITIONS, THE ENGINEER SHALL BE NOTIFIED BY THE CONTRACTOR. ALL SITE ITEMS SHALL BE LAID OUT AND AS BUILT BY A LICENSED LAND SURVEYOR.

GENERAL NOTES:

1. THIS PROJECT WILL BE SERVED BY PUBLIC SEWER, WATER, NATURAL GAS, TELEPHONE, CABLE AND ELECTRIC. ALL UTILITY LINES WILL BE INSTALLED UNDERGROUND.
2. ANY DAMAGE TO PRIVATE OR PUBLIC PROPERTIES DUE TO THE CONTRACTOR'S ACTIVITIES SHALL BE REPAIRED AND RESTORED BY THE CONTRACTOR AT THEIR OWN EXPENSE.
3. ALL PROPERTY MARKERS AND STREET LINE MONUMENTS SHALL BE PROPERLY PROTECTED DURING CONSTRUCTION. ANY DAMAGE TO THESE ITEMS SHALL BE REPAIRED AND RESTORED BY A SURVEYOR REGISTERED IN THE STATE OF MASSACHUSETTS AT THE CONTRACTORS EXPENSE.
4. THE CONTRACTOR IS RESPONSIBLE FOR SCHEDULING A PRE-CONSTRUCTION MEETING WITH THE CITY, THE APPROPRIATE UTILITY COMPANIES, THE OWNER AND OWNER'S REPRESENTATIVE. THE MEETING SHALL TAKE PLACE PRIOR TO THE START OF CONSTRUCTION AND THE CONTRACTOR MUST PROVIDE 48 HOURS NOTICE TO ALL ATTENDEES PRIOR TO THE START OF THE MEETING.
5. APPROPRIATE WARNING SIGNS, MARKERS, BARRICADES AND/OR FLAGMEN SHALL BE PROVIDED TO REGULATE TRAFFIC. CONSTRUCTION TRAFFIC CONTROL SHALL BE IMPLEMENTED PER THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THE LOCAL AUTHORITY.
6. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ADDITIONAL BENCHMARK INFORMATION IF REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING BENCHMARKS. IF IT IS NECESSARY TO RELOCATE A BENCHMARK, IT SHALL BE RELOCATED BY A MASSACHUSETTS PROFESSIONAL LAND SURVEYOR AND DONE SO AT THE CONTRACTOR'S EXPENSE.
7. ALL PERMITS AND APPROVALS NECESSARY FROM AGENCIES GOVERNING THE WORK SHALL BE OBTAINED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORK.
8. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO THE COMMENCEMENT OF ANY SITE WORK OR EARTHWORK OPERATIONS, SHALL BE MAINTAINED DURING CONSTRUCTION, AND SHALL REMAIN IN PLACE UNTIL ALL SITE WORK IS COMPLETE AND GROUND COVER IS ESTABLISHED. ADDITIONAL EROSION CONTROL MEASURES SHALL BE INSTALLED IF DETERMINED NECESSARY BY ON SITE INSPECTIONS BY THE OWNER, THEIR REPRESENTATIVES, OR REGULATORY AGENCIES HAVING JURISDICTION AT NO ADDITIONAL COST TO THE OWNER.
9. CONSTRUCTION DURING WET WEATHER OR WINTER CONDITIONS IS TO BE ANTICIPATED AND PROVISIONS TO ADEQUATELY ADDRESS THESE CONDITIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
10. ALL CONSTRUCTION SHALL CONFORM TO THE APPLICABLE REGULATIONS AND STANDARDS INCLUDING THE CITY OF CHELSEA, MADOT, MADEP, MUTCD, AND AASHTO.
11. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND FOR CONDITIONS AT THE SITE. THESE PLANS, PREPARED BY ALLEN & MAJOR ASSOCIATES DO NOT EXTEND TO OR INCLUDE SYSTEMS PERTAINING TO THE SAFETY OF THE CONSTRUCTION CONTRACTOR OR THEIR EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK, OR THE OWNER'S EMPLOYEES, CUSTOMERS, OR THE GENERAL PUBLIC. THE SEAL OF THE ENGINEER AS INCLUDED IN THE PLAN SET DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED INTO THESE PLANS. THE CONSTRUCTION CONTRACTOR SHALL PROVIDE THE APPROPRIATE SAFETY SYSTEMS WHICH MAY BE REQUIRED BY THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), STATE, AND LOCAL REGULATIONS.
12. GRANITE CURBING REMOVED FROM PUBLIC ROADS SHALL BE STOCKPILED AND RETURNED TO CITY OF CHELSEA DPW.
13. EXISTING STRUCTURES WITHIN CONSTRUCTION LIMITS ARE TO BE ABANDONED, REMOVED OR RELOCATED AS NECESSARY. ALL COSTS SHALL BE INCLUDED IN BASE BID.
14. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATIONS, INCLUDING BUT NOT LIMITED TO, ALL UTILITIES, STORM DRAINAGE, SIGNS, TRAFFIC SIGNALS & POLES, ETC. AS REQUIRED. ALL WORK SHALL BE IN ACCORDANCE WITH THE CITY OF CHELSEA'S GOVERNING AUTHORITY'S SPECIFICATIONS AND SHALL BE APPROVED BY SUCH. ALL COSTS SHALL BE INCLUDED IN BASE BID.
15. A SIGN PERMIT APPLICATION SHALL BE APPROVED BY THE TOWN PRIOR TO INSTALLATION OF FREESTANDING BUILDING/WALL SIGNS.
16. SEE SHEET 1 FOR EXISTING CONDITIONS.
17. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. IT'S INTENDED USE IS TO PROVIDE INFORMATION. ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.
18. SEE DETAIL SHEET D-5 FOR SIGN TABLE.
19. SNOW STORAGE SHOWN FOR CONCEPTUAL PURPOSES ONLY. SNOW SHALL BE TAKEN OFF-SITE ONCE SNOW STORAGE AREAS ON SITE BECOME INADEQUATE, AND BEGINS TO BLOCK ACCESS TO AN FROM THE SITE OR BLOCKS THE USE OF ON-SITE PARKING. ANY EXCESS WILL BE BE TRUCKED OFF-SITE & DISPOSED OF IN ACCORDANCE WITH CITY OF CHELSEA AND MADEP REQUIREMENTS.



LEGEND

PROP. PROPERTY LINE		HEAVY DUTY CONCRETE		TREE LINE	
SIGN		HEAVY DUTY PAVEMENT		TRANSFORMER	T
BOLLARD		SIDEWALK		VERTICAL GRANITE CURB	VGC
BUILDING		BRICK SIDEWALK		PRECAST CONCRETE CURB	PCC
BUILDING ARCHITECTURE		ADA ACCESSIBLE RAMP		INTEGRAL CONCRETE CURB	ICC
BUILDING INTERIOR WALLS		ADA DET. WARNING SURFACE		DOUBLE YELLOW CENTER LINE	DYCL
CURB		SNOW STORAGE		SOLID YELLOW CENTER LINE	SYCL
RETAINING WALL		SETBACK LINE		SOLID WHITE EDGE LINE	SWEL
PARKING STRIPING		PARKING COUNT (REG.)	8	SOLID YELLOW EDGE LINE	SYEL
ROADWAY STRIPING		COMPACT SPACE	C	BROKEN YELLOW CENTER LINE	BYCL
TRAFFIC ARROWS		WOOD FENCE		STOP LINE	SL

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

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PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

9	12-03-14	REVS TO LIGHTPOLE LAYOUT
8	11-06-14	REVS TO PARKING LAYOUT & ENTRANCE
7	04-23-14	REVS TO BLDG., PARKING & GRADING
6	03-17-14	REVS BLDG. & PARKING PER OWNER
5	02-04-14	REVS TO PARKING
REV	DATE	DESCRIPTION

APPLICANT\OWNER:
LAWRENCEVILLE, LLC
C/O JOHN STEBBINS
P.O. BOX 4430
MANCHESTER, NH 03108

PROJECT:
LAWRENCEVILLE, LLC
A 152 GUESTROOM
FULL SERVICE HOTEL
145 Beech Street - Chelsea, MA

PROJECT NO.	1362-07	DATE:	06/13/13
SCALE:	1" = 30'	DWG. NAME:	1362-07 LAYOUT AND MATERIALS_08
DESIGNED BY:	MAM	CHECKED BY:	RC

PREPARED BY:
ALLEN & MAJOR ASSOCIATES, INC.
civil & structural engineering ♦ land surveying
environmental consulting ♦ landscape architecture
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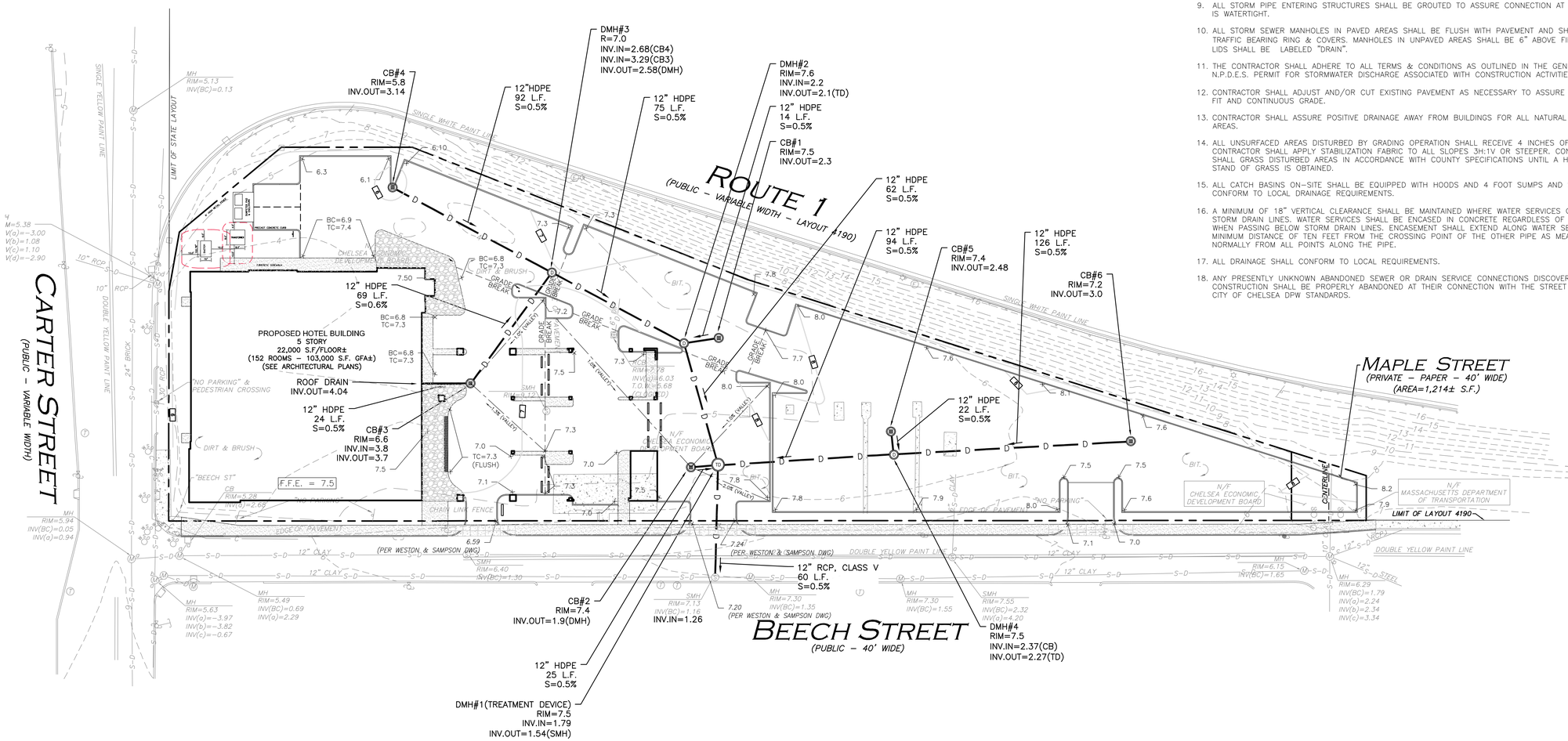
DRAWING TITLE:
MATERIALS AND LAYOUT PLAN

SHEET No.
C1

GRADING AND DRAINAGE NOTES

1. CONTRACTOR IS RESPONSIBLE FOR DEMOLITION OF EXISTING STRUCTURES INCLUDING REMOVAL OF ANY EXISTING UTILITIES SERVING THE STRUCTURE. UTILITIES ARE TO BE REMOVED TO THE RIGHT-OF-WAY.
2. ALL CUT OR FILL SLOPES SHALL BE 3:1 OR FLATTER UNLESS OTHERWISE NOTED.
3. PRECAST STRUCTURES MAY BE USED AT CONTRACTORS OPTION.
4. STORM PIPE SHALL BE HDPE.
5. EXISTING DRAINAGE STRUCTURES TO BE INSPECTED AND REPAIRED AS NEEDED, AND EXISTING PIPES TO BE CLEANED OUT TO REMOVE ALL SILT AND DEBRIS.
6. EXISTING GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT
7. PROPOSED GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT.
8. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.
9. ALL STORM PIPE ENTERING STRUCTURES SHALL BE GROUTED TO ASSURE CONNECTION AT STRUCTURE IS WATERTIGHT.
10. ALL STORM SEWER MANHOLES IN PAVED AREAS SHALL BE FLUSH WITH PAVEMENT AND SHALL HAVE TRAFFIC BEARING RING & COVERS. MANHOLES IN UNPAVED AREAS SHALL BE 6" ABOVE FINISH GRADE. LIDS SHALL BE LABELED "DRAIN".
11. THE CONTRACTOR SHALL ADHERE TO ALL TERMS & CONDITIONS AS OUTLINED IN THE GENERAL N.P.D.E.S. PERMIT FOR STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
12. CONTRACTOR SHALL ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE A SMOOTH FIT AND CONTINUOUS GRADE.
13. CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS.
14. ALL UNSURFACED AREAS DISTURBED BY GRADING OPERATION SHALL RECEIVE 4 INCHES OF TOPSOIL. CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES 3H:1V OR STEEPER. CONTRACTOR SHALL GRASS DISTURBED AREAS IN ACCORDANCE WITH COUNTY SPECIFICATIONS UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.
15. ALL CATCH BASINS ON-SITE SHALL BE EQUIPPED WITH HOODS AND 4 FOOT SUMPS AND SHALL CONFORM TO LOCAL DRAINAGE REQUIREMENTS.
16. A MINIMUM OF 18" VERTICAL CLEARANCE SHALL BE MAINTAINED WHERE WATER SERVICES CROSS STORM DRAIN LINES. WATER SERVICES SHALL BE ENCASED IN CONCRETE REGARDLESS OF CLEARANCE WHEN PASSING BELOW STORM DRAIN LINES. ENCASEMENT SHALL EXTEND ALONG WATER SERVICE A MINIMUM DISTANCE OF TEN FEET FROM THE CROSSING POINT OF THE OTHER PIPE AS MEASURED NORMALLY FROM ALL POINTS ALONG THE PIPE.
17. ALL DRAINAGE SHALL CONFORM TO LOCAL REQUIREMENTS.
18. ANY PRESENTLY UNKNOWN ABANDONED SEWER OR DRAIN SERVICE CONNECTIONS DISCOVERED DURING CONSTRUCTION SHALL BE PROPERLY ABANDONED AT THEIR CONNECTION WITH THE STREET MAIN PER CITY OF CHELSEA DPW STANDARDS.



LEGEND:

- DRAIN MANHOLE
- CATCH BASIN
- CATCH BASIN - DOUBLE GRATE
- DRAIN LINE — D —
- RIPRAP OUTFALL
- HEADWALL
- 10' CONTOUR — 150 —
- 2' CONTOUR — 128 —
- SPOT GRADE ×128
- SAW-CUT LINE
- INFILTRATION SYSTEM
- INFILTRATION PIPE
- UNDERDRAIN — UD —

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

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PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

10	04-22-15	REVS TO GRADING AT SOUTH PARKING
9	11-06-14	REVS TO PARKING LAYOUT & ENTRANCE
8	08-21-14	REVISIONS PER SEWER ALIGNMENT
7	04-23-14	REVS TO BLDG., PARKING & GRADING
6	03-17-14	REVS BLDG. & PARKING PER OWNER
5	02-04-14	REVS TO PARKING
REV	DATE	DESCRIPTION

APPLICANT\OWNER:

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C/O JOHN STEBBINS
P.O. BOX 4430
MANCHESTER, NH 03108

PROJECT:

LAWRENCEVILLE, LLC
A 152 GUESTROOM
FULL SERVICE HOTEL
145 Beech Street - Chelsea, MA

PROJECT NO. 1362-07	DATE: 06/13/13
SCALE: 1" = 30'	DWG. NAME: 1362-07 GRADING AND DRAINAGE
DESIGNED BY: MAM	CHECKED BY: RC

PREPARED BY:
ALLEN & MAJOR ASSOCIATES, INC.
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environmental consulting ♦ landscape architecture
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WOBURN, MA ♦ LAKEVILLE, MA ♦ MANCHESTER, NH

DRAWING TITLE: GRADING AND DRAINAGE PLAN

SHEET No. C2

UTILITY NOTES:

1. A MINIMUM OF 10 FEET CLEAR HORIZONTALLY SHALL BE MAINTAINED BETWEEN WATER MAINS AND SANITARY SEWER MAINS AND/OR STORM DRAINS. WHENEVER CONDITIONS PREVENT A LATERAL SEPARATION OF 10 FEET TO A WATER MAIN, THE WATER MAIN SHALL BE LAID IN A SEPARATE TRENCH AND THE DIFFERENCE IN ELEVATION BETWEEN THE WATER MAIN AND THE SEWER MAIN SHALL BE AT LEAST 18 INCHES.

2. IN THE CASE THAT WATER MAINS CROSS SANITARY SEWER MAINS AND/OR STORM DRAINS AND ARE SEPARATED BY LESS THAT 18" OF VERTICAL CLEARANCE, THE WATER MAIN SHALL BE ENCASED IN CONCRETE FOR THE ENTIRE WIDTH OF THE TRENCH AND FOR A DISTANCE OF 8 LINEAR FEET CENTERED ON THE CROSSING.

3. THE LATEST STANDARDS OF THE CITY OF CHELSEA DEPARTMENT OF PUBLIC WORKS, WASTEWATER DIVISION SHALL BE FOLLOWED WHEN PERFORMING ANY SANITARY SEWER WORK. SEWER WORK WILL BE INSPECTED BY CITY OF CHELSEA PERSONNEL AND ALL COSTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

4. THE LATEST STANDARDS OF THE CITY OF CHELSEA ENGINEERING DEPARTMENT &, DEPARTMENT OF PUBLIC WORKS SHALL BE FOLLOWED WHEN INSTALLING ANY WATER LINES, AND ALL WATER LINE WORK WILL BE INSPECTED BY CITY OF CHELSEA PERSONNEL. PRESSURE AND LEAKAGE TEST, DISINFECTING AND FLUSHING SHALL BE IN ACCORDANCE WITH ALL LOCAL MUNICIPAL STANDARDS AND REQUIREMENTS. IN ADDITION TO MEETING CITY OF CHELSEA STANDARDS, THESE METHODS MUST COMPLY WITH AWWA C600 AND AWWA C651 STANDARDS. CHLORINATED WATER MUST BE DECHLORINATED PRIOR TO FLUSHING AND CONTRACTOR MUST MONITOR THE VOLUME OF WATER USED FOR FLUSHING FOR THE CITY TO USE IN THEIR ANNUAL REPORTING TO THE MADEP. CONTRACTORS SHALL BE RESPONSIBLE FOR PRESSURE TESTING, DISINFECTING, AND FLUSHING OF LINES. INSPECTION COSTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION AND REMOVAL OF ALL NECESSARY DISINFECTING AND FLUSHING TAPS AS DIRECTED. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS IN CONNECTION WITH UTILITY TESTS, FLUSHING AND INSPECTIONS AS REQUIRED BY THE LOCAL MUNICIPALITY.

5. THE CONTRACTOR SHALL REFER TO ARCHITECTS PLANS AND SPECIFICATIONS FOR ACTUAL LOCATION OF ALL ROOF DRAIN LATERALS AND UTILITY ENTRANCES TO INCLUDE SANITARY SEWER LATERALS, DOMESTIC AND FIRE PROTECTION WATER SERVICE, ELECTRIC, TELEPHONE, AND GAS SERVICE. THE CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES IN SUCH A MANNER AS TO AVOID CONFLICTS AND COORDINATE WITH THE PROPER AGENCY THE LOCATION AND SCHEDULING OF CONNECTIONS WITH THEIR FACILITIES.

6. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION. THE ENGINEER WILL THEN PROVIDE RESOLUTION TO UTILITY CONFLICTS WITHOUT DELAY.

7. ABANDONED EXISTING UTILITIES AND UTILITIES TO BE ABANDONED SHALL BE REMOVED TO THE MAIN AND DISPOSED OF AS SPECIFIED. ALL UTILITIES SCHEDULED FOR REMOVAL AND DISPOSAL MUST BE COORDINATED BY THE CONTRACTOR WITH THE RESPECTIVE UTILITY OWNER. REMOVE ABANDONED UTILITY MANHOLES, JUNCTION BOXES AND SIMILAR STRUCTURES TO A MINIMUM DEPTH OF 4 FEET BELOW FINISHED GRADE AND PUNCTURE OR BREAK THE BOTTOM SLABS OF MANHOLES AND SIMILAR STRUCTURE TO ALLOW DRAINAGE. BACKFILL AND COMPACT EXCAVATIONS RESULTING FROM REMOVAL OF UTILITY FACILITATES, AS REQUIRED TO RESTORE THE ORIGINAL GRADE.

8. SEWER ABANDONMENTS SHALL BE CUT, CAPPED AND PLUGGED. ABANDONED STUB SHALL HAVE RESILIENT SEALED MECHANICAL PLUG AND SHALL BE FILLED WITH CONCRETE (2,500 PSI). MECHANICAL PLUG SHALL BE REDBALL, MILLER OR (PER MWRA).

9. THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENTS OF NATURAL GAS, ELECTRIC, TELEPHONE AND ANY OTHER UTILITY BY THE UTILITY OWNER.

10. THE CONTRACTOR SHALL USE THE FOLLOWING PIPE MATERIALS:

    SEWER – PVC (POLYVINYL CHLORIDE), SDR–35

    WATER – CLDI (CEMENT LINED DUCTILE IRON) CLASS 52 AND SHALL BE RESTRAINED AT ALL JOINTS WITH MEGALUG TYPE RESTRAINED JOINT. POLYETHYLENE WRAP SHALL BE USED ON ALL CLDI PIPE AND FITTINGS. MATERIALS USED FOR WATER SYSTEM AND SERVICES MUST BE NORTH AMERICAN MADE.

11. ALL UTILITY CONNECTIONS THROUGH THE BUILDING WALL SHALL BE BY MEANS OF FLEXIBLE JOINTS.

12. ALL WATER GATES TO PROPOSED HYDRANTS ARE 6" DIAMETER UNLESS OTHERWISE NOTED.

13. ALL WATER MAINS SHALL BE INSTALLED WITH A MINIMUM OF 5 FEET OF COVER AND A MAXIMUM OF 8 FEET OF COVER EXCEPT AS NOTED OR DETAILED OTHERWISE. IF WATER MAIN CANNOT BE INSTALLED WITH 5 FEET OF COVER, SUCH AS CONFLICTS WITH OTHER UTILITIES, THE WATER MAIN SHALL BE INSTALLED WITH PIPE INSULATION.

14. ALL HYDRANTS SHALL BE INSTALLED WITH A 6 INCH CLDI RUNOUT AND SHALL BE INSTALLED WITH APPROPRIATELY SIZED GATE VALVE, BOX, AND TEE FITTING. ALL HYDRANTS SHALL MEET LOCAL MUNICIPAL SPECIFICATION REQUIREMENTS AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS. HYDRANTS SHALL BE M&H 929 PER CITY OF CHELSEA. ADDITIONALLY HYDRANTS ARE REQUIRED TO BE THE COLOR ORANGE.

15. ALL WATER MAINS 3 INCHES AND LARGER SHALL BE CEMENT LINED DUCTILE IRON – CLASS 52, AND SHALL BE INSTALLED WITH APPROPRIATELY SIZED FITTINGS AND GATE VALVES. DUCTILE IRON PIPE MUST MEET THE REQUIREMENTS OF ANSI AND AWWA. POLYETHYLENE WRAP SHALL BE USED ON ALL CLDI PIPE AND FITTINGS. PIPE SHALL BE RESTRAINED JOINT PIPE (TR FLEX AS MANUFACTURED BY THE UNITED STATED PIPE AND FOUNDRY COMPANY). IN LIEU OF RESTRAINED JOINT PIPE USE FIELD LOKTM GASKET AS MANUFACTURED BY UNITED STATES PIPE AND FOUNDRY COMPANY.

16. DOMESTIC WATER SERVICES SHALL BE INSTALLED WITH APPROPRIATELY SIZED CORPORATIONS, CURB STOPS, AND BOXES.

17. ALL WATER MAIN APPURTENANCES, MATERIALS, METHODS OF INSTALLATION AND TESTING REQUIREMENTS SHALL MEET OR EXCEED THE CITY OF CHELSEA REQUIREMENTS.

18. GENERALLY, WATER MAIN FITTINGS, VALVES AND HYDRANTS SHOWN ON THIS DRAWING ARE FOR INSTALLATION LOCATION PURPOSES. THE CONTRACTOR SHALL NOTE THAT NOT ALL FITTINGS, VALVES AND HYDRANTS ARE NOTED, SHOWN OR INDICATED.

19. ALL WATER MAIN FITTINGS, VALVES AND TEES ETC. SHALL BE RESTRAINED WITH THRUST BLOCKS AS REQUIRED BY THE CITY OF CHELSEA WHERE ADEQUATE RESTRAINT CANNOT BE OBTAINED WITH THRUST BLOCKS, MEGALUG SPLIT RETAINER GLAND IS REQUIRED.

20. THE CONTRACTOR SHALL FIELD VERIFY/LOCATE EXISTING WATER MAINS AND WATER SERVICES.

21. VALVES 8 INCHES AND SMALLER SHALL BE GATE VALVES AND SHALL BE RESILIENT SEAT, MODIFIED WEDGE DISK CONFORMING TO AWWA C–509, AND BE APPROVED BY THE MUNICIPALITY.

22. ALL WATER MAIN 2 INCH OR SMALLER SHALL BE COPPER AND SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF CHELSEA STANDARDS. COPPER TUBING SHALL BE SOFT, ANNEALED, SEAMLESS CONFORMING TO FED. SPEC. WW–T–799E OR ASTM B88, TYPE K.

23. CORPORATION STOPS SHALL BE OF BRONZE. THE INLET SHALL HAVE AWWA TAPER THREAD (CC) CONNECTIONS AND THE OUTLET SHALL HAVE COMPRESSION CONNECTIONS. SERVICE CLAMPS SHALL BE INSTALLED WITH ALL CORPORATION STOPS 2 INCHES AND LARGER IN SIZE AND WITH ALL CORPORATION STOPS INSTALLED IN PVC PIPE. CLAMPS SHALL BE ALL BRONZE, DUCTILE IRON, SINGLE OR DOUBLE STRAP, AWWA TAPER THREAD (CC) WITH O–RING SEAL. CURB STOPS SHALL BE OF BRONZE, THE INLET AND THE OUTLET SHALL HAVE COMPRESSION OR FLARED CONNECTIONS. ALL CURB STOPS SHALL ALSO BE OF THE INVERTED KEY STYLE. WASTE PORTS ARE REQUIRED FOR ALL 1–1/2" AND 2" CURB STOPS.

24. ALL CURB BOXES SHALL BE THE SLIDING BUFFALO TYPE WITH ARCH OR MINNEAPOLIS PATTERN. MINIMUM INSIDE DIAMETER OF THE UPPER SECTION SHALL BE 1–1/2" FOR 3/4" INCH SERVICE AND 1" CURB STOPS AND 2" FOR 1–1/2" AND 2" CURB STOPS. ALL CURB BOXES SHALL BE MANUFACTURED IN USA AND/OR CANADA.

25. ALL WATER METERS SHALL BE INSTALLER PER CITY OF CHELSEA STANDARDS. THE CONTRACTOR SHALL USE THE FOLLOWING "NEPTUNE, RADIO HEAD" METERS PROVIDED BY TI–SALES, INC. OF SUDBURY, MA (800) 225–4616:

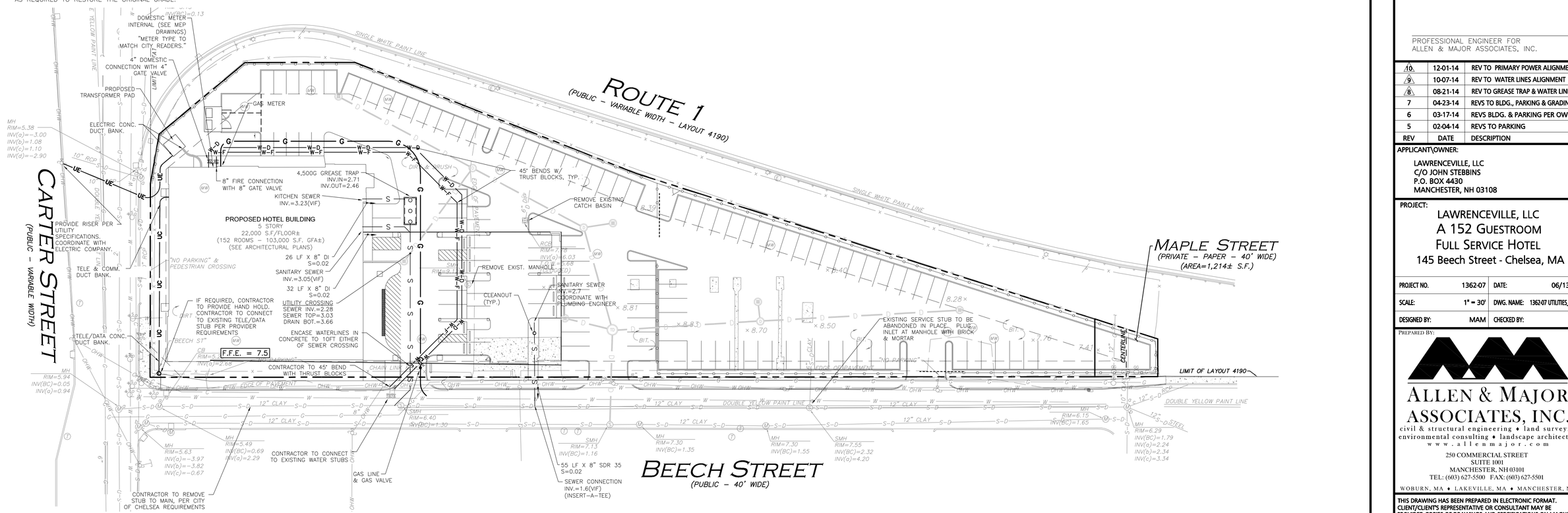
    8" FIRE SERVICE – PROSPECTUS III METER (8")
    4" DOMESTIC SERVICE– T–10 METER (4")

26. ALL WATER TAPS SHALL MAINTAIN A MINIMUM OF 3 FEET BETWEEN TAPS AND BELL CONNECTIONS AT MAIN.

27. ANY PRESENTLY UNKNOWN ABANDONED SEWER OR DRAIN SERVICE CONNECTIONS DISCOVERED DURING CONSTRUCTION SHALL BE PROPERLY ABANDONED AT THEIR CONNECTION WITH THE STREET MAIN PER CITY OF CHELSEA DPW STANDARDS.

LEGEND:

- SEWER MANHOLE
- SEWER CLEANOUT
- SEWER LINE — S —
- CONCRETE PIPE ENCASEMENT
- WATER (FIRE SERVICE) — W–F —
- WATER (DOMESTIC SERVICE) — W–D —
- WATER VALVE
- HYDRANT
- WATER LINE REDUCER
- GAS LINE — GAS —
- GAS VALVE — GV
- GREASE TRAP
- LIGHT FIXTURE
- OVER HEAD WIRE — OHW —
- UTILITY POLE
- ELECTRIC MANHOLE/SPLICE BOX
- SWITCHING STATION
- HAND HOLE
- ELECTRICAL CONDUIT — E —
- TELE/CABLE CONDUIT — T–C —



GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

R:\PROJECTS\1362–07\CIVIL\DRAWINGS\CURRENT\1362–07 UTILITIES_REV2.DWG

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

10	12-01-14	REV TO PRIMARY POWER ALIGNMENT
9	10-07-14	REV TO WATER LINES ALIGNMENT
8	08-21-14	REV TO GREASE TRAP & WATER LINES
7	04-23-14	REVS TO BLDG., PARKING & GRADING
6	03-17-14	REVS BLDG. & PARKING PER OWNER
5	02-04-14	REVS TO PARKING
REV	DATE	DESCRIPTION

APPLICANT\OWNER:

LAWRENCEVILLE, LLC
C/O JOHN STEBBINS
P.O. BOX 4430
MANCHESTER, NH 03108

PROJECT:

LAWRENCEVILLE, LLC
A 152 GUESTROOM
FULL SERVICE HOTEL
145 Beech Street - Chelsea, MA

PROJECT NO.	1362-07	DATE:	06/13/13
SCALE:	1" = 30'	DWG. NAME:	1362-07 UTILITIES_REV2
DESIGNED BY:	MAM	CHECKED BY:	RC

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil & structural engineering ♦ land surveying
environmental consulting ♦ landscape architecture
www.allenmajor.com
250 COMMERCIAL STREET
SUITE 1001
MANCHESTER, NH 03101
TEL: (603) 627-5500 FAX: (603) 627-5501
WOBURN, MA ♦ LAKEVILLE, MA ♦ MANCHESTER, NH

DRAWING TITLE: UTILITY PLAN

SHEET No. C3

PLANTING SCHEDULE - TREES, SHRUBS & PERENNIALS

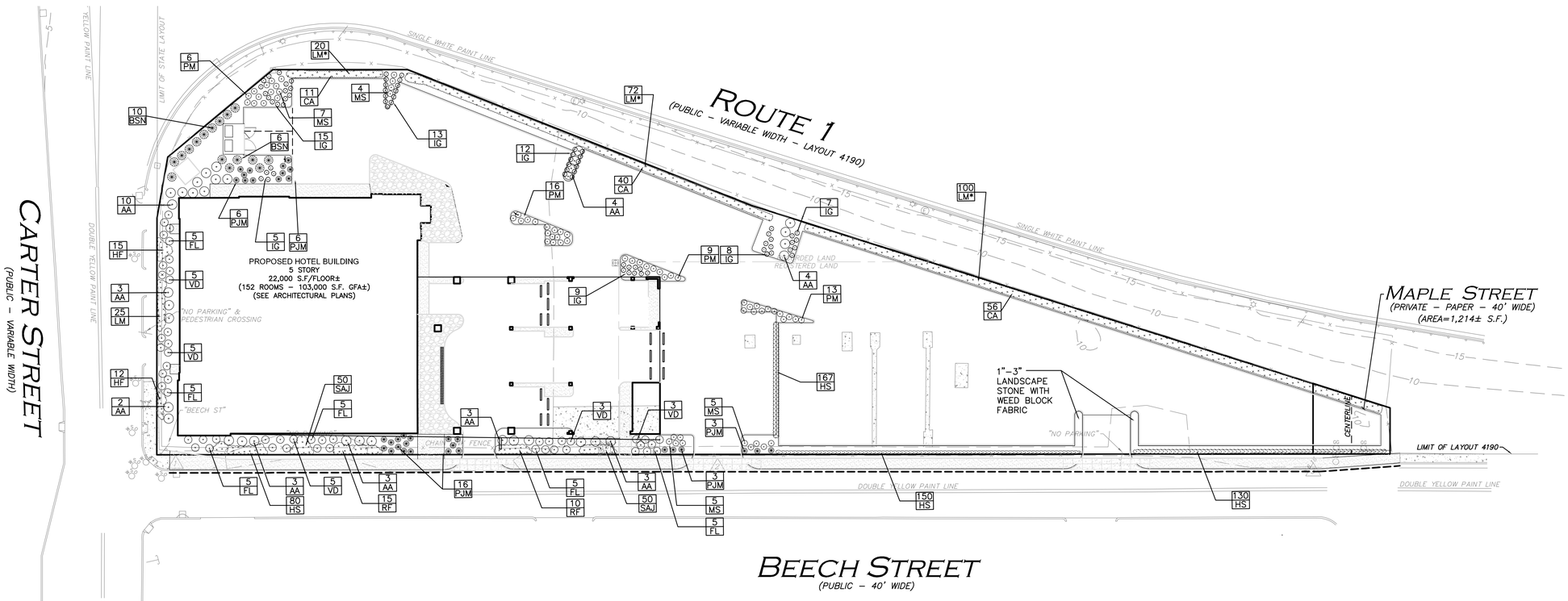
KEY	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	COMMENTS
SHRUBS						
AA	35	AMELANCHIER ALNIFOLIA 'REGENT'	REGENT SERVICEBERRY	2' TO 3'	AS SHOWN	B&B
BSN	51	BUXUS S. NEWPORT BLUE	NEWPORT BLUE BOXWOOD	18"–24"	AS SHOWN	B&B
FL	30	FORSYTHIA 'LYNWOOD GOLD'	LYNWOOD GOLD FORSYTHIA	3' TO 4'	AS SHOWN	CONT
IG	69	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY	3 GAL.	AS SHOWN	CONT
PM	44	PINUS MUGO MOPS	MOPS MUGO PINE	6 GAL.	AS SHOWN	CONT.
PJM	34	P.J.M. RHODENDRON	RHODENDRON	2' TO 2.5'	AS SHOWN	B&B
VD	21	VIBURNUM DENTATUM	ARROWWOOD VIBURNUM	4' TO 5'	AS SHOWN	B&B
PERENNIALS						
HF	27	HOSTA FRANCEE	FRANCEE HOSTA	2 GAL.	2' O.C.	STAGGERED
HS	527	HEMEROCALLIS STELLA D'ORA	YELLOW DAYLILY	2 GAL.	18" O.C.	STAGGERED
LM	25	LIRIOPE MUSCARI 'VARIEGATA'	LILYTURF	2 GAL.	2' O.C.	STAGGERED
MS	21	MISCANTHUS SINENSIS 'ZEBRINUS'	ZEBRA GRASS	3 GAL.	3' O.C.	STAGGERED
RF	25	RUDBECKIA FULGIDA	BLACKEYED SUSAN	2 GAL.	3' O.C.	STAGGERED
SAJ	100	SEDUM AUTUMN JOY	AUTUMN JOY SEDUM	2 GAL.	18" O.C.	STAGGERED
LM*	192	LIRIOPE MUSCARI 'VARIEGATA'	LILYTURF	2 GAL.	3' O.C.	STAGGERED
CA	107	CALAMAGROSTIS ACUTIFLORA 'KARL FOERSTER'	ZEBRA GRASS	3 GAL.	4' O.C.	STAGGERED

NOTES:

1. SEE SHEET ABB–1 FOR ABBREVIATIONS & NOTES.
2. SEE SHEET 1 FOR EXISTING CONDITIONS.
3. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. IT'S INTENDED USE IS TO PROVIDE INFORMATION. ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.

LEGEND:

DECIDUOUS TREE
FLOWERING TREE
SHRUB
PERENNIALS, GRASSES
PLANT KEY 9 TM



GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

R:\PROJECTS\1362–07\CIVIL\DRAWINGS\CURRENT\1362–07 LANDSCAPING.DWG

REGISTERED LANDSCAPE ARCHITECT FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
8	11-06-14	REVS TO PARKING LAYOUT & ENTRANCE
7	04-23-14	REVS TO BLDG., PARKING & GRADING
6	03-17-14	REVS BLDG. & PARKING PER OWNER
5	02-04-14	REVS TO PARKING

APPLICANT\OWNER:

LAWRENCEVILLE, LLC
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MANCHESTER, NH 03108

PROJECT:

LAWRENCEVILLE, LLC
A 152 GUESTROOM
FULL SERVICE HOTEL
145 Beech Street - Chelsea, MA

PROJECT NO.	1362-07	DATE:	06/13/13
SCALE:	1" = 30'	DWG. NAME:	1362-07 LANDSCAPING
DESIGNED BY:	MAM	CHECKED BY:	RC

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil & structural engineering ♦ land surveying
environmental consulting ♦ landscape architecture
www.allenmajor.com
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MANCHESTER, NH 03101
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WOBURN, MA ♦ LAKEVILLE, MA ♦ MANCHESTER, NH

DRAWING TITLE: LANDSCAPING PLAN

SHEET No. C-4A

APPENDIX B

Action Memorandum & TSCA § 761.61(c) Determination, May 14, 2013

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
5 POST OFFICE SQUARE – SUITE 100
BOSTON, MASSACHUSETTS 02109-3912

MEMORANDUM

DATE: April XX, 2013

SUBJ: Request for Funding and a $2 Million Exemption to Conduct a Time Critical Removal Action at the Former Lawrence Metals Site, Chelsea, Massachusetts **ACTION MEMORANDUM**

FROM: Athanasios Hatzopoulos, On-Scene Coordinator (OSC)
Emergency Response and Removal Section II

THRU: Cosmo Caterino, Acting Section Chief
Emergency Response and Removal Section II

Steven R. Novick, Acting Branch Chief
Emergency Planning & Response Branch (EPRB)

THRU: James T. Owens, III
Director, Office of Site Remediation and Restoration

TO: Curt Spalding, Regional Administrator

I. PURPOSE

The purpose of this Action Memorandum is to request and document approval for an initial removal and a $2 million exemption to conduct a time critical removal action at the Former Lawrence Metals Site (the Site), which is located at 145-155 Beech Street (formerly known as 210 Maple Street) and also includes the remnants of the former Maple Street, in Chelsea, Massachusetts. (In 1954, approximately 1/3 of the Site was taken by the Massachusetts Highway Department for the construction of Route 1. This parcel comprises a separate removal site known as the MassDOT Route 1 Right-of-Way Site.) Hazardous substances, primarily Polychlorinated Biphenyls (PCBs) and metals (lead), are present in soils at the Site, and if not addressed by implementing the response actions selected in this Action Memorandum, will continue to pose a threat to human health and the environment. There are no nationally significant or precedent-setting issues associated with this Site, and there has been no use of the OSC's $200,000 warrant authority.

II. SITE CONDITIONS AND BACKGROUND

CERCLIS ID# : MAN000106127
SITE ID# : 01KM
CATEGORY : Time-Critical

A. Site Description

1. Removal site evaluation

The Site's primary contaminants of concern are PCBs and lead in the Site soils. The soils contain PCBs at levels as high as 208,000 mg/kg and lead up to 17,380 mg/kg. The regulatory history at this Site began in January 1999 when the Massachusetts Department of Environmental Protection (MassDEP) issued a Release Tracking Number for the Site. Based on the PCB concentrations at the Site, the Site also is regulated under the Toxic Substances Control Act (TSCA) and the federal PCB regulations at 40 CFR Part 761. The EPRB's involvement began in June 2012, after a referral from the EPA's Region 1 PCB Coordinator.

At the request of the City of Chelsea (the City), on June 6, 2012, a meeting was held to discuss the Site conditions and its possible impact to the surrounding area, namely the Chelsea High School located directly across the Street from the Site. The meeting was attended by representatives from the City, MassDEP, and EPA.

On July 31, 2012, the MassDEP formally requested EPA to have the EPRB conduct a removal action.

Based on Site conditions and analytical results gathered by Weston & Sampson (Weston), the City's technical consultant, and other historical investigatory information, a time critical removal action was recommended in a Closure Memorandum dated August 1, 2012.

On August 8 or 9, 2012 EPA was notified by the City that the City had located enough resources to perform the cleanup and it believed that EPA involvement was no longer necessary.

On August 29, 2012, a meeting attended by the City, a perspective developer, MassDEP, and EPA (EPRB, legal, Brownfields) included discussions of EPA conducting additional sampling to augment a Weston Phase III report.

On September 24, 2012, EPA, MassDEP and the City and perspective developer met again and developed a plan for collecting additional soil samples to supplement and to confirm the historical data that was collected by private engineering firms.

In October 2012, EPA and its contractor collected175 samples (soil/concrete/pavement) from various locations, to depths ranging from surface to nine feet. The samples were analyzed for PCBs, total metals, and Toxicity Characteristic Leaching Procedure (TCLP) for metals. Analysis of the collected samples confirmed that the soils are contaminated with PCBs, metals, with some samples failing TCLP for lead. These results confirm the finding that the Site meets the criteria identified in the National Contingency Plan for a time-critical removal action.

On January 1, 2013, EPA received notification from the City and the developer of their commitment to redevelop the Site for use as a hotel. This commitment was based on the scenario of multi-part (EPA, City, and developer) collaboration in the remediation of the Site.

2. Physical location

The Site is located at 145-155 Beech Street in Chelsea, MA and is also identified in the Chelsea Assessor's Office on Map 55, Lots 17A and 17B. The Site also includes remnants of the former Maple Street to the south. It is abutted by Carter Street and Chelsea High School and the Vietnam Veteran's Pool to the north, U.S. Route 1 to the east and Beech Street and a new hotel development to the west.

The geographic coordinates of the property are:
Latitude/Longitude: 42° 23' 56" North, 71° 02' 20" West

3. Site characteristics

Historically, the Site has been utilized for various commercial and industrial uses since the late 19th Century. Earliest records indicate the Site was first occupied by Chadbourne & Mocre, Inc. and the Bridgeport Coach Lace Company, which used the Site for the production of textiles. The American Barrel Company (ABC) began operating on the Site in 1938 and utilized the Site for painting and cleaning of barrels and drums for reuse. The ABC operations continued until May 1974, when a fire destroyed the ABC building. Following the destruction of the former ABC building, the Site was left vacant until 1979.

In June 1979, the Site was redeveloped by the Superior Distributing Company (Superior). After purchasing the property, Superior constructed a large rectangular building in the southern portion of the Site along Beech Street. Superior occupied the building, which it used as a warehouse, until 1986 when the Site was purchased by the Massachusetts Institute of Technology (MIT).

MIT completed minor modifications to the Superior building before the Lawrence Metals Forming Company (LMFC) took ownership and began operating on the Site from 1986 until 1999. The LMFC operations included manufacturing and custom fabrication of various metal products. The City of Chelsea Economic Development Board under an Urban Renewal Plan acquired the property through an order of taking in 1999, and in December 2000 demolished the LMFC building (formerly Superior building) leaving only the foundation and floor slab.

The Site is currently vacant. The northern half of the Site is unpaved and overgrown with dense vegetation. The southern half of the Site is predominantly covered with asphalt and portions of concrete floor slabs. The southern half of the Site also includes three (3) areas (approximately 1,200 square feet) that are unpaved and covered with gravel. These areas are where a limited soil removal took place in 2001 and completed in 2002 as a limited removal action, referred to as a Release Abatement Measure (RAM) under the Massachusetts Contingency Plan (MCP). Currently the Site is secured with a chain link fence.

There are several occupied buildings and institutions located in the vicinity of the Site. A hotel is located directly across Beech Street, and the Chelsea High School and a community swimming pool directly to north of the Site on Carter Street. The school's student and teacher body is 1,581. Beech Street and Carter Street are two of the three major routes walked daily by students and others attending the High School or using the community pool.

The nearest surface water body is the Chelsea River located approximately 1.2 miles to the east.

According to the EPA Region 1 Environmental Justice Mapping Tool, the Site is in an environmental justice area and 45,014 people live within one mile radius.

4. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant

PCBs and lead were detected in soil samples at the Site. PCBs and lead are hazardous substances as defined by Section 101(14) of CERCLA, 42 U.S.C. 9601(14). The PCB concentrations present at the Site exceed the default cleanup standards considered protective of public health including: EPA's PCB Cleanup and Disposal Regulations, 40 CFR Section 761.61, (1 mg/kg for unrestricted use, and 10 to 100 mg/kg with a compliant cap); the preliminary remediation goals (1 mg/kg for residential areas, 10 to 25 mg/kg for industrial use) specified in EPA OSWER Directive 9355.4-01; and, the MCP Method 1 default standard of 2 mg/kg for both residential and industrial soils.

The highest concentrations for both hazardous substances detected are compared to the remediation standards identified in the MCP as follows:

Hazardous Substance	**Highest Concentrations Detected**	**MCP Soil Remediation Standards**
		S-1 (high frequency/intensity use area)
Lead	17,300 mg/kg	300 mg/kg
PCBs	208,000 mg/kg	2 mg/kg

5. NPL status

The Site is not currently on the National Priorities List, and has not received a Hazardous Ranking System rating.

B. Other Actions to Date

1. Previous actions

This will be the first removal action conducted at the Site by EPA.

C. State and Local Authorities' Roles

1. State and local actions to date

The MassDEP issued a Release Tracking Number on the Site in January 1999 and a Notice of Responsibility to Lawrence Metal Forming Corp. on May 18, 1999. MassDEP has since received notices over the years of various Site investigations and of the August 2001 limited removal action performed by Maximillian Technologies, Inc., on behalf of the Lawrence Metal Forming Corp., to address the elevated concentrations of PCBs and lead detected in shallow soils. Details regarding the historical site investigations and/or remedial activities are documented in reports on file with MassDEP.

2. Potential for continued State/local response

This project is a high priority for the Region, with multiple federal and state agencies, including EPA's Office of Public Affairs Community Involvement, Brownfields, and Removal Programs, the Department of Justice, the City, MassDEP, and MassDOT, working cooperatively to assist in promoting the reuse of a blighted area consistent with the City of Chelsea's Urban Renewal Plan.

At this time, MassDEP does not have adequate funds to undertake the response actions at the Site. Although MassDEP lacks funding, it has played an integral role in facilitating conversations with all of the parties, providing historical and regulatory information and will continue to build on its participation by providing oversight to ensure compliance with applicable state regulations. Following completion of the removal action, regulatory control of the property will be remanded back to MassDEP but with limited federal involvement as required under the TSCA PCB regulations.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

As described below, the conditions at the Site meet the general criteria for a removal action, as set forth in 40 C.F.R. §300.415(b)(1), in that "there is a threat to public health or welfare of the United States or the environment", and in consideration of the factors set forth in 40 C.F.R. §300.415(b)(2) as described below.

POLYCHLORINATED BIPHENYLS (PCBs)- Please see the Agency for Toxic Substances and Disease Registry (ATSDR), U.S. Department of Health and Human Services, Public Health Service, *ToxFAQ Fact Sheet for Polychlorinated Biphenyls, February 2001* in Attachment 1.

LEAD – Please see the Agency for Toxic Substances and Disease Registry (ATSDR), U.S. Department of Health and Human Services, Public Health Service, *ToxFAQ Fact Sheet for Lead, August 2007* in Attachment 2.

Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants; [§300.415(b)(2)(i)];

The hazardous substances, including PCBs and metals in the soils pose an immediate direct contact threat and/or potential exposure. There are several occupied buildings and institutions located in the vicinity of the Site. A hotel is located directly across Beech Street, and the Chelsea High School and a community swimming pool directly to north of the Site on Carter Street. The school's student and teacher body is 1,581. Beech Street and Carter Street are two of the three major routes walked daily by students and others attending the High School or using the community pool. According to the EPA Region 1 Environmental Justice Screening Tool, the Site exceeds 80% of the national indices for 7 out of 10 parameters and 45,014 people live within one mile radius.

High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate [§300.415(b)(2)(iv)];

Elevated levels of hazardous substances, including PCBs and metals, in soils largely at or near the surface have been detected. These contaminants could migrate via air into the surrounding community, or by erosion and surface water runoff during high periods of rain onto Beech and Carter Streets which are major thoroughfares of the High School and swimming pool.

Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released [§300.415(b)(2)(v)]; and

Under adverse weather conditions, exposed contaminated soil could potentially migrate off-site via air, soil erosion and surface water runoff. As stated earlier, there are several occupied buildings and institutions located in the vicinity of the Site. A hotel is located directly across Beech Street, and the Chelsea High School and a community swimming pool directly to north of the Site on Carter Street.

The availability of other appropriate Federal or State response mechanisms to respond to the release [§300.415(b)(2)(vii)].

State and local agencies do not have adequate available resources to address the contamination at the Site. Due to the concerns listed above, on July 31, 2012, the MassDEP formally requested EPA to have the EPRB conduct a removal action.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

V. EXEMPTION FROM STATUTORY LIMITS

A. Emergency Exemption

There is an immediate risk to public health or welfare or the environment.

The hazardous substances, including PCBs and lead in the soils, pose an immediate direct contact threat and/or potential exposure. Under adverse weather conditions, exposed contaminated soil could potentially migrate off-site via wind, soil erosion and surface water runoff. There are several occupied buildings and institutions located in the vicinity of the Site. A hotel is located directly across Beech Street, and the Chelsea High School and a community swimming pool directly to north of the Site on Carter Street. The school's student and teacher body is 1,581. Beech Street and Carter Street are two of the three major routes walked daily by students and others attending the High School or using the community pool. According to the EPA Region 1 Environmental Justice Screening Tool, the Site exceeds 80% of the national indices for 7 out of 10 parameters and 45,014 people live within one mile radius.

Continued response actions are immediately required to prevent, limit, or mitigate an emergency.

The PCBs present in the Site soils have been detected as high as 208,000 mg/kg. In addition lead has been detected as high as 17,300 mg/kg. Response actions detailed below include the removal of soil contaminated with PCBs and lead. If these measures are not addressed, there will be a continued threat to public health, welfare and the environment posed by conditions at the Site.

Assistance will not otherwise be provided on a timely basis.

The State and local agencies do not have adequate available resources to address the contamination at the Site. Due to the concerns listed above, on July 31, 2012, the MassDEP formally requested EPA to have the EPRB conduct a removal action.

This project is a high priority for EPA. To effectively conduct this removal action, EPA has formed a collaborative partnership with multiple federal and state agencies, including EPA's, Office of Public Affairs Community Involvement, Brownfields and removal programs, the City, MassDEP, and MassDOT. This cooperation among the parties will enable the cleanup of the Site and assist the promotion and reuse of a blighted area consistent with the City of Chelsea's Urban Renewal Plan.

VI. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed action description

The proposed actions will protect public health, welfare, and the environment. The goal of this removal action is to eliminate the direct contact threat and decrease the source contamination that is impacting ground water and adjacent properties by excavating and disposing off-site, soils with lead, PCBs, and other yet unidentified hazardous substances.

During the removal activity, the OSC will continue to provide extensive coordination with MassDEP, the City and developer.

The actions required to mitigate the threats outlined herein are as follows:

- Conduct a Site walk with the Emergency Rapid Response Services (ERRS) contractor;
- Establish a command post and staging area, and connect necessary utilities;
- Implement erosion control measures as determined necessary by the OSC;
- Conduct air monitoring and implement dust control measures as appropriate during the Removal Action;
- Conduct extent of contamination sampling to determine the amount of soil to be removed. The areas to be incorporated in the study will include the un-numbered vacant parcel to the south that was previously Maple Street;
- Provide non-working hour site security and maintain security fencing;
- Excavate and dispose off-site soils with PCB concentrations greater than (>) 1 mg/kg to a depth of one foot below ground surface across the entire Site. Additional contaminated areas which may continue to as act as a source material, will be excavated at depth, at the discretion of the EPA OSC.

- Excavate and dispose off-site soils with PCB concentrations greater than or equal to (≥) 50 mg/kg at any location in the northern portion of the Site, and excavate and dispose off-site, soils located in the southern half of the Site to achieve an average PCB concentration of less than or equal to (≤) 100 mg/kg. The soils or waste streams will be an amalgam of soil/pavement/concrete pads/rock, etc.
- Stabilize soil, as required for TCLP lead. At this time, soil sampling has revealed that portions of soil to be excavated have exceeded the TCLP lead standard. As a result on-site treatment of soil is necessary to reduce the leachable lead to a level that allows material to be cost effectively transported and disposed of in a land disposal facility.
- Installation of a visual marker to delineate contaminated soils (if any) which may remain at depth or which cannot otherwise be excavated. At the discretion of the OSC, backfill and restore disturbed areas and repair response-related damages.
- Restoration/Backfilling will be conducted by the developer.
- Cleanup-generated waste streams will be documented and shipped off-site for disposal at state/EPA approved facilities. Wastes may be live loaded or staged in a secure area on-site while awaiting shipment. Depending on anticipated storage duration prior to shipment for ultimate disposal, the OSC will determine whether waste will be staged on-site or shipped to a properly permitted storage facility. Waste staging options will be evaluated based on cost and safety considerations as well as compliance with applicable state and federal regulations.
- Demobilize all personnel and equipment from the Site.

Cleanup of PCB-contaminated soils, concrete, and asphalt at the Site is regulated under TSCA and the federal PCB regulations at 40 CFR Part 761. A TSCA determination on the removal action is provided in Attachment 3.

The Site will be referred to MassDEP and to EPA's TSCA PCB Program for any long-term remedial measures (including institutional controls and long-term operation and maintenance of any cap that is constructed) that may be required to address remaining Site risks.

2. Community relations

As stated earlier, the EPA's Office of Public Affairs Community Involvement is an integral party and has been involved with this project since its inception. Throughout the removal action it will continue its involvement to disseminate information regarding the project to the City and the impacted residents.

3. Contribution to remedial performance

The cleanup proposed in this Action Memorandum is designed to mitigate the threats to human health and the environment posed by the Site. MassDEP believes that the actions taken at the Site would be consistent with and will not impede any future responses. Following completion

of the removal action, regulatory control of the property will be remanded back to MassDEP but with limited federal involvement as required under the TSCA PCB regulations.

4. Description of alternative technologies

The use of alternative technologies with regard to disposal options will be further examined as the Site work progresses, however, at this time disposal options for these types of contaminated soils are limited. On-site field screening and analytical techniques may be utilized during the removal action.

5. Applicable or relevant and appropriate requirements (ARARs)

Pursuant to 40 C.F.R. 300.415(j), removal actions shall, to the extent practicable considering the exigencies of the situation, attain ARARs. Current ARARs identified, but not limited to, are listed below.

Federal ARARs:

40 C.F.R. Section 122.26(c)(ii)(C) and 122.44(k) Clean Water Act NPDES Regulations (Stormwater Control and Management)

40 C.F.R. Parts 260-262 and 264 Resource Conservation and Recovery Act, Subtitle C- Hazardous Waste Identification and Listing Regulations; Generator and Handler Requirements, Closure and Post-Closure - Massachusetts has been delegated the authority to administer these RCRA standards through its state hazardous waste management regulations. State regulations that have adopted these federal standards are listed below.[where?]

40 CFR Part 761: TSCA PCB Regulations

State ARARs:

310 CMR 40.0900 Procedures and Standards for the Characterization of the Risk of Harm to Health, Safety, Public Welfare and the Environment
310 CMR 30.100 Hazardous Waste Rules for Identification and Listing of Hazardous Wastes

10 CMR 30.300 Hazardous Waste Management Rules - Requirements for Generators

310 CMR 30.500 Hazardous Waste Management Rules - General standards for hazardous waste facilities

310 CMR 30.680 Hazardous Waste Rules - Containers

310 CMR 30.690 Hazardous Waste Rules - Management, Storage, and Treatment in Tanks

The OSC will coordinate with State officials to identify additional State ARARs, if any. In accordance with the National Contingency Plan and EPA Guidance Documents, the OSC will determine the applicability and practicability of complying with each ARAR which is identified in a timely manner.

6. Project schedule

EPA plans to perform the initial site walk in ___2013 and expects to complete the work in _____months of the start date.

B. Estimated Costs

COST CATEGORY	CEILING
REGIONAL REMOVAL ALLOWANCE COSTS:	
ERRS Contractor	$3,150,000.00
Interagency Agreement	$ 0.00
OTHER EXTRAMURAL COSTS NOT FUNDED FROM THE REGIONAL ALLOWANCE:	
START Contractor	$250,000.00
Extramural Subtotal	$3,400,000.00
Extramural Contingency	00.00
TOTAL, REMOVAL ACTION CEILING	**$3,400,000.00**

VII. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

A delayed or absence of a removal action described herein will cause conditions at the Site to remain unaddressed and the presence of the Site's hazardous substances will continue to pose a threat to human health and the environment.

VIII. OUTSTANDING POLICY ISSUES

There are no precedent-setting policy issues associated with this Site.

IX. ENFORCEMENT ... For Internal Distribution Only

X. RECOMMENDATION

This decision document represents the selected removal action for the Former Lawrence Metals Site in Chelsea, Massachusetts, developed in accordance with CERCLA, as amended, and is not inconsistent with the National Contingency Plan. The basis for this decision will be documented in the administrative record to be established for the Site.

Conditions at the Site meet the NCP Section 300.415 (b) criteria for a removal and the CERCLA section 104(c) emergency exemption from the $2 million limitation, and I recommend your approval of the proposed removal action and a $2 million exemption. The total removal action project ceiling if approved will be $3.4 million, of which $1.5 will be funded from the FY13 Regional removal allowances.

APPROVAL:_____ DATE:_____

DISAPPROVAL:_____ DATE:_____

Attachment 1

Agency for Toxic Substances and Disease Registry (ATSDR), U.S. Department of Health and Human Services, Public Health Service, *ToxFAQ Fact Sheet for Polychlorinated Biphenyls*

Attachment 2

Agency for Toxic Substances and Disease Registry (ATSDR), U.S. Department of Health and Human Services, Public Health Service, *ToxFAQ Fact Sheet for Lead*

Attachment 3

TSCA § 761.61(c) Determination for Former Lawrence Metal Works

This TSCA Determination is for the approximately 1-acre property located at 145-155 Beech Street in Chelsea, Massachusetts ("the Site"). The Site currently is owned by the City of Chelsea. A prospective developer for the Site has been identified where the intended end use will be a hotel (northern portion of Site) and parking area (southern portion of property). The original Site property boundaries were altered in the 1950s when the Massachusetts Highway Department (now Massachusetts Department of Transportation), took a portion of the SE corner of the Site for construction of Route 1.

Historically, the Site has been utilized for various commercial and industrial uses since the late 19th Century. Earliest records indicate that the Site was used for the production of textiles. In 1938, the American Barrel Company (ABC) used the Site for painting and cleaning of barrels and drums for reuse. In 1974, a fire destroyed the ABC building and the Site was vacant until 1979.

In June 1979, the Site was redeveloped by the Superior Distributing Company (Superior) which constructed a large rectangular building in the southern portion of the Site along Beech Street. Superior occupied and used the building as warehouse until 1986 when the Site was purchased by the Massachusetts Institute of Technology (MIT).

MIT completed minor modifications to the building before the Lawrence Metals Forming Company (LMFC) took ownership and operated from 1986 until 1999. The LMFC operations included manufacturing and custom fabrication of various metal products. The City of Chelsea Economic Development Board under an Urban Renewal Plan acquired the property through an order of taking in 1999, and in December 2000 demolished the building superstructure, leaving the foundation and floor slab in-place.

The Site is currently vacant and secured with a chain-line fence. The northern half of the Site is unpaved and overgrown with dense vegetation. The southern half of the Site is predominantly covered with asphalt or the concrete floor slab of the former LMFC building. The southern half of the Site also includes three (3) areas (approximately 1,200 square feet) that are unpaved and covered with gravel. The unpaved areas correspond with the areas of limited soil removal, which were completed in 2002 as a limited removal action, referred to as a Release Abatement Measure (RAM) under the Massachusetts Contingency Plan (MCP).

Site investigations began in the early 2000s and a limited soil removal action was conducted in 2001 under the Massachusetts Contingency Plan. The results of Site investigations, however,

indicate significant levels of PCBs (as high as 208,000 parts per million (ppm) remain at the Site in both surficial and sub-surface soils and in concrete/asphalt. In addition, groundwater sampling identified PCB concentrations at greater than 0.5 parts per billion (ppb) and providing a potential pathway for off-site migration. In addition to PCBs, high concentrations of lead also have been identified in Site soils.

In July 2012, the MassDEP formally requested that EPA conduct a removal action at the Site to address the contamination at the Site.

EPA is proposing to conduct a time-critical removal action at the Site as it has determined that the contamination at the Site may present an imminent and substantial endangerment to public health, or welfare, or the environment if not addressed. Thus, the overall goal of the removal action is to reduce the direct contact threat and decrease the source contamination that is impacting ground water and adjacent properties. The major elements of the removal action include the following:

- Excavation of soils/concrete/asphalt in the northern portion of the Site with greater than or equal to (≥) 50 parts per million (ppm) PCBs and soils in the southern portion of the Site to achieve an average of ≤ 100 ppm PCBs, or to the extent possible based on Site conditions

- Disposal of PCB-contaminated soils at a land disposal facility based on *in situ* concentrations. PCB-contaminated soils with less than (<) 50 ppm may be disposed of in accordance with § 761.61(a)(5)(i)(B)(*2*)(*ii*); PCB contaminated soils with ≥ 50 ppm may be disposed of in accordance with § 761.61(a)(5)(i)(B)(*2*)(*iii*).

- Storage of PCB wastes may be staged on-site for transport to a disposal facility or may be shipped to a permitted storage facility prior to shipment for disposal.

- Installation of a visual marker to delineate contaminated soils (if any) which may remain at depth or which cannot otherwise be excavated.

- Final restoration/backfilling shall be conducted by developer.

Based on the information provided, the PCB-contaminated soils/asphalt/concrete likely meet the definition of a *PCB remediation waste* as defined under 40 CFR § 761.3 and thus are regulated for cleanup and disposal under 40 CFR Part 761.

In accordance with the requirements under the Toxic Substances Control Act (TSCA) and 40 CFR § 761.61(c), I have reviewed the pertinent documents regarding the Site, which include the Weston Phase II Report dated August 2012 and *draft* Phase III Report dated October 2012, and the sampling results of an October 2012 Site investigation by EPA's START contractor, Weston Solutions.

Consistent with § 761.61(c) of the Toxic Substances Control Act (TSCA), I have determined that the method of excavation and disposal of PCB-contaminated soils/asphalt/concrete as proposed in the removal action does not pose an unreasonable risk of injury to human health or the environment as long as the following conditions are met:

1. Engineering controls for dust suppression shall be used during excavation and contaminated waste handling activities, and air quality shall be monitored to ensure that the air quality performance standards protective of public health are met.

2. Following excavation of identified PCB-contaminated soils, verification sampling shall be conducted to determine the PCB concentrations remaining in Site soils. The verification sampling protocols and frequency and the laboratory sample requirements shall be detailed in a work plan prior to the start of any soil/concrete/asphalt removal work at the Site.

3. Compliance with the PCB regulations at 40 CFR Part 761 is maintained during all phases of work involving PCB-contaminated soils/asphalt/concrete, including but not limited to:

    a. 40 CFR § 761 Subpart C – Marking of PCBs and PCB Items
    b. 40 CFR § 761.65 - Storage for Disposal
    c. 40 CFR § 761.79 – Decontamination Standards and Procedures
    d. 40 CFR § 761.180 - Records and Monitoring
    e. 40 CFR § 761 Subpart K, PCB Waste Disposal Records and Reports

4. An After Action Report will be prepared that details the location and PCB concentrations remaining at the Site. The information provided in this Report will be reviewed to confirm that the PCB concentrations remaining at the Site do not pose an unreasonable risk to public health and the environment as required under § 761.61(c). In the event that such a determination is made and if PCB concentrations at > 1 ppm remain at the Site, a long-term monitoring and maintenance plan (LTMMP) shall be established for groundwater monitoring, if applicable and required under the MCP, and for maintenance of ground surfaces, and may be included At a minimum, the LTMMP shall include: a description of the activities that will be conducted, including routine ground surface maintenance activities; groundwater quality monitoring locations, as applicable; sampling protocols, sampling frequency, and analytical criteria; and reporting requirements.

a. The LTMMP shall include a communications component which details where the maintenance and monitoring information will be maintained and communicated, if requested, to interested stakeholders; and,

b. The LTMMP shall be submitted to EPA for review and comment and the Site owner shall incorporate any changes to the LTMMP required by EPA. Activities required under the LTMMP shall be conducted until such time that EPA determines, in writing, that such activities are no longer necessary;

5. A deed notice shall be recorded on the Site area(s) where PCB concentrations at > 1 ppm remain. The deed notice may be in the form of an Activity and Use Limitation (AUL) and shall identify the use restrictions for the property, if any, and the long-term monitoring and maintenance requirements on the area(s), which may be addressed by the LTMMP.

6. Any development or activity on the Site shall be designed, implemented, and maintained in a manner to prevent any release or exposure to any soil or groundwater that is contaminated with PCBs.

7. In the event that PCBs are identified at other areas located within the Site boundaries that are not addressed under the Removal Action or are not addressed under this TSCA Determination, the Site owner shall be required to comply with 40 CFR Section 761.61 for cleanup and disposal of these PCBs.

_____ _____

James T. Owens, III Date
Director, Office of Site Remediation & Restoration

APPENDIX C

Weston & Sampson
Figure 1 – Select Utility Plan

ROUTE 1 NORTHBOUND

ROUTE 1 SOUTHBOUND

ROUTE 1 SOUTHBOUND ON-RAMP

CARTER STREET

BEECH STREET

MAPLE STREET

MASSDOT MAPLE ST. PROPERTY

CITY OF CHELSEA PROPERTY

N

NOTES:

1. BASE MAP TAKEN FROM PLAN ENTITLED "SITE PLAN WITH SAMPLING LOCATIONS" PREPARED BY CDW CONSULTANTS, INC. (MARCH 2003).
2. EXCAVATION DEPTH & LIMITS PROVIDED BY EPA.
3. UTILITY DEPTH AND LOCATION SHOWN IS APPROXIMATE.

FUTURE CURB 6-FT OFF PROPERTY LINE (TYP.)
-NOT INSTALLED
-PROPOSED DEPTH 1-FT; 1.5-FT WIDTH

FUTURE LIGHT POLE FOUNDATION (TYP.)
-NOT INSTALLED
-PROPOSED DEPTH 6-FT; 2-FT DIAMETER

FUTURE 12" RC DRAIN
-NOT INSTALLED
-PROPOSED DEPTH TO INVERT 6.5-FT
-TO BE CONNECTED TO 15" RCP DRAIN IN STREET

8" PVC SEWER (BACKFILLED)
-INSTALLED 9-FT THROUGH SIDEWALK AND 11-FT PAST PL
-DEPTH TO INVERT 5-FT

15" RCP DRAIN & MANHOLES (BACKFILLED)
-INSTALLED 8 TO 12-FT BELOW GROUND SURFACE

4" DI WATER MAIN (NOT BACKFILLED)
8" DI WATER MAIN (NOT BACKFILLED)
-INSTALLED 9-FT THROUGH SIDEWALK AND 8-FT PAST PL
-DEPTH TO TOP OF PIPE 6-FT

FIRE HYDRANT (PARTIALLY BACKFILLED)
-INSTALLED 6-FT THROUGH SIDEWALK
-DEPTH TO TOP OF PIPE 6-FT

8" PVC SEWER (BACKFILLED)
-INSTALLED 9-FT THROUGH SIDEWALK AND 6-FT PAST PL
-DEPTH TO INVERT 4.5-FT

LEGEND:

- PROPERTY LINE(S)
- DISPOSAL SITE BOUNDARY - RTN 3-17917
- NORTH/SOUTH SUB-AREA BOUNDARY LINE
- APPROXIMATE PROPOSED BUILDING FOOTPRINT
- CHAIN LINK FENCE

EPA REMEDIATION DEPTH OF EXCAVATION:

5' / 11.2 — EPA CONFIRMATORY SAMPLING/REMEDIATION GRID; DEPTH OF EXCAVATION (FEET BELOW EXISTING GRADE); POST-EXCAVATION PCB SAMPLING RESULT

- EXCAVATED 0-3 FEET BELOW GROUND SURFACE
- EXCAVATED 3-5 FEET BGS
- EXCAVATED 5-7 FEET BGS
- EXCAVATED 7+ FEET BGS
- SIDEWALK REMEDIATION AREA - EXCAVATED 2.5 FEET BGS

20 10 0 20 40
SCALE: 1"=20'

FIGURE 1

CITY OF CHELSEA, MASSACHUSETTS
SPRUCE STREET AND BEECH STREET
ROADWAY AND UTILITY IMPROVEMENT PROJECT

SELECT UTILITY PLAN

AUGUST, 2014 SCALE: 1" = 20'

Weston&Sampson®

G:\Chelsea MA\Spruce & Beech - Masswerks\Construction\LAR\UTILITIES REV. 7-30-14.dwg

APPENDIX D

Weston & Sampson
2014 Soil Sampling Documentation

Table 3
Soil Analytical Results - On-Property PCB Sample Results
Beech Street Utility Construction

Parameter	MCP Method 1 Cleanup Standards		SAMPLING LOCATIONS																			
			SS-101		SS-102	SS-103			SS-103A			SS-104			SS-104A			SS-105			SS-105A		
	S-2/GW-2	S-2/GW-3	3-6 in.	6-12 in.	3-6 in.	0-3 in.	3-6 in.	6-12 in.	0-3 in.	3-6 in.	6-12 in.	0-3 in.	3-6 in.	6-12 in.	0-3 in.	3-6 in.	6-12 in.	0-3 in.	3-6 in.	6-12 in.	0-3 in.	3-6 in.	6-12 in.
PCBs																						
Aroclor 1016	4	4	<0.49	<0.12	<0.69	<0.15	<0.59	<11	<0.24	<2.9	<2.5	<0.60	<0.61	<0.57	<0.62	<0.59	<0.58	<0.24	<0.12	<0.13	<0.11	<0.11	<0.11
Aroclor 1221	4	4	<0.49	<0.12	<0.69	<0.15	<0.59	<11	<0.24	<2.9	<2.5	<0.60	<0.61	<0.57	<0.62	<0.59	<0.58	<0.24	<0.12	<0.13	<0.11	<0.11	<0.11
Aroclor 1232	4	4	<0.49	<0.12	<0.69	<0.15	<0.59	<11	<0.24	<2.9	<2.5	<0.60	<0.61	<0.57	<0.62	<0.59	<0.58	<0.24	<0.12	<0.13	<0.11	<0.11	<0.11
Aroclor 1242	4	4	<0.49	<0.12	**1.2**	<0.15	<0.59	<11	<0.24	<2.9	<2.5	<0.60	<0.61	<0.57	<0.62	<0.59	<0.58	<0.24	<0.12	<0.13	<0.11	<0.11	<0.11
Aroclor 1248	4	4	<0.49	<0.12	<0.69	<0.15	<0.59	<11	<0.24	<2.9	**6.8**	<0.60	<0.61	**1.7**	<0.62	<0.59	**1.1**	<0.24	<0.12	<0.13	<0.11	<0.11	<0.11
Aroclor 1254	4	4	**2.6**	**0.63**	**4.5**	**0.76**	**5.5**	**110**	**2.8**	**29**	**15**	**3.9**	**4.6**	**4**	**3.1**	**3.2**	**2.6**	**1.9**	**0.86**	**0.31**	**0.22**	**0.13**	**0.13**
Aroclor 1260	4	4	<0.49	<0.12	<0.69	<0.15	**2.8**	<11	**0.36**	**4.7**	<2.5	<0.60	<0.61	<0.57	<0.62	<0.59	<0.58	**0.38**	<0.12	<0.13	<0.11	<0.11	<0.11
Aroclor 1262	4	4	<0.49	<0.12	<0.69	<0.15	<0.59	<11	<0.24	<2.9	<2.5	<0.60	<0.61	<0.57	<0.62	<0.59	<0.58	<0.24	<0.12	<0.13	<0.11	<0.11	<0.11
Aroclor 1268	4	4	<0.49	<0.12	<0.69	<0.15	<0.59	<11	<0.24	<2.9	<2.5	<0.60	<0.61	<0.57	<0.62	<0.59	<0.58	<0.24	<0.12	<0.13	<0.11	<0.11	<0.11
Total PCBs	4	4	**2.6**	**0.63**	**5.7**	**0.76**	**8.3**	**110**	**3.16**	**33.7**	**21.8**	**3.9**	**4.6**	**5.7**	**3.1**	**3.2**	**3.7**	**2.28**	**0.86**	**0.31**	**0.22**	**0.13**	**0.13**
			Removed	<1	Removed	Removed	Removed	Removed 18 inches (no post excavation data collected)**	Removed	Removed	Removed 18 inches (no post excavation data collected)**	Removed	Removed	Removed 18 inches (no post excavation data collected)**	Removed	Removed	Removed 18 inches (no post excavation data collected)**	Removed	<1	<1	<1	<1	<1

Parameter	MCP Method 1 Cleanup Standards		SAMPLING LOCATIONS																			
			SS-106			SS-106A			SS-107			SS-107A			SS-108			SS-108A			SS-109	
	S-2/GW-2	S-2/GW-3	0-3 in.	3-6 in.	6-12 in.	0-3 in.	3-6 in.	6-12 in.	0-3 in.	3-6 in.	6-12 in.	0-3 in.	3-6 in.	6-12 in.	0-3 in.	3-6 in.	6-12 in.	0-3 in.	3-6 in.	6-12 in.	0-6in	6-12 in.
PCBs																						
Aroclor 1016	4	4	<0.23	<0.62	<0.13	<0.59	<0.60	<0.13	<0.63	<2.5	<1.3	<0.73	<0.66	<0.22	<0.60	<0.57	<0.58	<1.2	<0.59	<0.11	<1.3	<0.60
Aroclor 1221	4	4	<0.23	<0.62	<0.13	<0.59	<0.60	<0.13	<0.63	<2.5	<1.3	<0.73	<0.66	<0.22	<0.60	<0.57	<0.58	<1.2	<0.59	<0.11	<1.3	<0.60
Aroclor 1232	4	4	<0.23	<0.62	<0.13	<0.59	<0.60	<0.13	<0.63	<2.5	<1.3	<0.73	<0.66	<0.22	<0.60	<0.57	<0.58	<1.2	<0.59	<0.11	<1.3	<0.60
Aroclor 1242	4	4	<0.23	<0.62	<0.13	<0.59	<0.60	<0.13	<0.63	<2.5	<1.3	<0.73	<0.66	<0.22	<0.60	<0.57	<0.58	<1.2	<0.59	<0.11	<1.3	<0.60
Aroclor 1248	4	4	<0.23	**1**	<0.13	<0.59	**0.9**	<0.13	<0.63	<2.5	**5.7**	<0.73	<0.66	**0.91**	<0.60	<0.57	**1.1**	<1.2	<0.59	<0.11	<1.3	**1.6**
Aroclor 1254	4	4	**1.5**	**3.7**	**0.57**	**4.3**	**3.5**	**0.69**	**4.3**	**18**	**12**	**3.8**	**4.3**	**1.9**	**3.6**	**4.4**	**3.1**	**8.8**	**4.6**	**0.65**	**7.6**	**3.3**
Aroclor 1260	4	4	**0.38**	<0.62	<0.13	<0.59	<0.60	<0.13	<0.63	<2.5	<1.3	<0.73	<0.66	<0.22	<0.60	<0.57	<0.58	<1.2	<0.59	<0.11	<1.3	<0.60
Aroclor 1262	4	4	<0.23	<0.62	<0.13	<0.59	<0.60	<0.13	<0.63	<2.5	<1.3	<0.73	<0.66	<0.22	<0.60	<0.57	<0.58	<1.2	<0.59	<0.11	<1.3	<0.60
Aroclor 1268	4	4	<0.23	<0.62	<0.13	<0.59	<0.60	<0.13	<0.63	<2.5	<1.3	<0.73	<0.66	<0.22	<0.60	<0.57	<0.58	<1.2	<0.59	<0.11	<1.3	<0.60
Total PCBs	4	4	**1.88**	**4.7**	**0.57**	**4.3**	**4.4**	**0.69**	**4.3**	**18**	**17.7**	**3.8**	**4.3**	**2.81**	**3.6**	**4.4**	**4.2**	**8.8**	**4.6**	**0.65**	**7.6**	**4.9**
			Removed	Removed	<1	Removed	Removed	<1	Removed	Removed	Removed 18 inches (no post excavation data collected)**	Removed	Removed	Removed 18 inches (no post excavation data collected)**	Removed	Removed	Removed 18 inches (no post excavation data collected)**	Removed	Removed	<1	Removed	Removed 18 inches (no post excavation data collected)**

Parameter	MCP Method 1 Cleanup Standards		SAMPLING LOCATIONS																			
			SS-110		SS-111		SS-112		SS-113		SS-114		SS-115		SS-116		SS-117		SS-118		SS-119	
	S-2/GW-2	S-2/GW-3	0-6in	6-12 in.	0-6in	6-12 in.	0-6 in.	6-12 in.	0-6 in.	6-12 in.	0-6 in.	6-12 in.	0-6 in.	6-12 in.	0-6 in.	6-12 in.	0-6 in.	6-12 in.	0-6 in.	6-12 in.	0-6 in.	6-12 in.
PCBs																						
Aroclor 1016	4	4	<0.11	<0.11	<0.58	<0.12	<1.2	<0.49	<0.58	<1.3	<0.12	<0.12	<0.12	<0.12	<0.11	<0.12	<0.57	<0.56	<0.11	<0.43	<0.10	<0.54
Aroclor 1221	4	4	<0.11	<0.11	<0.58	<0.12	<1.2	<0.49	<0.58	<1.3	<0.12	<0.12	<0.12	<0.12	<0.11	<0.12	<0.57	<0.56	<0.11	<0.43	<0.10	<0.54
Aroclor 1232	4	4	<0.11	<0.11	<0.58	<0.12	<1.2	<0.49	<0.58	<1.3	<0.12	<0.12	<0.12	<0.12	<0.11	<0.12	<0.57	<0.56	<0.11	<0.43	<0.10	<0.54
Aroclor 1242	4	4	<0.11	<0.11	<0.58	<0.12	<1.2	<0.49	<0.58	<1.3	<0.12	<0.12	<0.12	<0.12	<0.11	<0.12	<0.57	<0.56	<0.11	<0.43	<0.10	<0.54
Aroclor 1248	4	4	<0.11	<0.11	<0.58	<0.12	<1.2	<0.49	**1**	**7.3**	<0.12	**0.13**	<0.12	<0.12	**0.14**	<0.12	<0.57	<0.56	<0.11	**0.62**	<0.10	**0.91**
Aroclor 1254	4	4	<0.11	<0.11	**4.6**	**1.2**	**6.2**	**2.3**	**4.4**	**15**	**0.27**	**0.54**	**0.47**	**0.24**	**0.52**	**0.35**	**3.3**	**3.5**	**0.81**	**1.9**	**0.18**	**3**
Aroclor 1260	4	4	<0.11	<0.11	<0.58	<0.12	**2**	<0.49	<0.58	<1.3	<0.12	<0.12	<0.12	<0.12	<0.11	<0.12	<0.57	<0.56	<0.11	<0.43	<0.10	<0.54
Aroclor 1262	4	4	<0.11	<0.11	<0.58	<0.12	<1.2	<0.49	<0.58	<1.3	<0.12	<0.12	<0.12	<0.12	<0.11	<0.12	<0.57	<0.56	<0.11	<0.43	<0.10	<0.54
Aroclor 1268	4	4	<0.11	<0.11	<0.58	<0.12	<1.2	<0.49	<0.58	<1.3	<0.12	<0.12	<0.12	<0.12	<0.11	<0.12	<0.57	<0.56	<0.11	<0.43	<0.10	<0.54
Total PCBs	4	4	ND	ND	**4.6**	**1.2**	**8.2**	**2.3**	**5.4**	**22.3**	**0.27**	**0.67**	**0.47**	**0.24**	**0.66**	**0.35**	**3.3**	**3.5**	**0.81**	**2.52**	**0.18**	**3.91**
QC by NDP 3/12/2015			<1	<1	Removed	Removed 18 inches (no post excavation data collected)**	Removed	Removed 18 inches (no post excavation data collected)**	Removed	Removed 18 inches (no post excavation data collected)**	<1	<1	<1	<1	<1	<1	Removed	Removed 18 inches (no post excavation data collected)**	Removed	Removed 18 inches (no post excavation data collected)**	Removed	Removed 18 inches (no post excavation data collected)**

**** Post excavation sample was not collected due to either the presence of demarkation layer or water.**

Notes:

Concentrations are in milligram per kilogram (mg/kg

Samples collected in October 2014 through January 2015.

PCBs - Polychlorinated biphenyls

< = indicates sample result less than the applicable laboratory detection limit

BOLD	Parameter Exceeds Laboratory Detection Limit
BOLD	Parameter Exceeds MCP Method 1 Cleanup Standards
BOLD	PCBs Exceeding 50 mg/kg. Must be disposed of at TSCA-Certified Landfill.

Table 3
Soil Analytical Results - On-Property PCB Sample Results
Beech Street Utility Construction
Chelsea, Massachusetts

Parameter	MCP Method 1 Cleanup Standards		SAMPLING LOCATIONS																	
			SS-120		SS-121		SS-122		SS-122A		SS-123		SS-123A		SS-124		SS-124A		SS-125		SS-125A	
	S-2/GW-2	S-2/GW-3	0-6 in.	6-12 in.	0-6 in.	6-12 in.	0-6 in.	18-24in.	0-6 in.	6-12 in.	0-6 in.	18-24in.	0-6 in.	6-12 in.	0-6 in.	18-24 in.	0-6 in.	6-12 in.	0-6 in.	18-24 in.	0-6 in.	6-12 in.
PCBs																						
Aroclor 1016	4	4	<1.1	<1.1	<1.1	<0.53	<0.44	<0.43	<2.2	<0.55	<0.46	<0.46	<0.56	<0.59	<0.44	<0.57	<1.1	<2.4	<0.93	<0.51	<1.1	<0.58
Aroclor 1221	4	4	<1.1	<1.1	<1.1	<0.53	<0.44	<0.43	<2.2	<0.55	<0.46	<0.46	<0.56	<0.59	<0.44	<0.57	<1.1	<2.4	<0.93	<0.51	<1.1	<0.58
Aroclor 1232	4	4	<1.1	<1.1	<1.1	<0.53	<0.44	<0.43	<2.2	<0.55	<0.46	<0.46	<0.56	<0.59	<0.44	<0.57	<1.1	<2.4	<0.93	<0.51	<1.1	<0.58
Aroclor 1242	4	4	<1.1	<1.1	<1.1	<0.53	<0.44	<0.43	<2.2	<0.55	<0.46	<0.46	<0.56	<0.59	<0.44	<0.57	<1.1	<2.4	<0.93	<0.51	<1.1	<0.58
Aroclor 1248	4	4	**2.5**	**2.2**	**2**	**1.2**	**0.74**	<0.43	<2.2	<0.55	**2**	**3.3**	<0.56	<0.59	**0.81**	<0.57	<1.1	<2.4	**3.3**	**0.68**	<1.1	<0.58
Aroclor 1254	4	4	**7.1**	**7.8**	**7.4**	**4**	**2**	**0.64**	**12**	**5.2**	**5**	**5.4**	**5.1**	**2.5**	**1.7**	<0.57	**6.2**	**12**	**9.1**	**1.6**	**5.7**	**4.3**
Aroclor 1260	4	4	<1.1	<1.1	<1.1	<0.53	<0.44	<0.43	<2.2	**0.71**	**0.93**	**1.1**	**0.82**	<0.59	<0.44	<0.57	<1.1	<2.4	**1.5**	**0.65**	<1.1	**0.67**
Aroclor 1262	4	4	<1.1	<1.1	<1.1	<0.53	<0.44	<0.43	<2.2	<0.55	<0.46	<0.46	<0.56	<0.59	<0.44	<0.57	<1.1	<2.4	<0.93	<0.51	<1.1	<0.58
Aroclor 1268	4	4	<1.1	<1.1	<1.1	<0.53	<0.44	<0.43	<2.2	<0.55	<0.46	<0.46	<0.56	<0.59	<0.44	<0.57	<1.1	<2.4	<0.93	<0.51	<1.1	<0.58
Total PCBs	4	4	**9.6**	**10**	**9.4**	**5.2**	**2.74**	**0.64**	**12**	**5.91**	**7.93**	**9.8**	**5.92**	**2.5**	**2.51**	ND	**6.2**	**12**	**13.9**	**2.93**	**5.7**	**4.97**
			Removed	Removed 18 inches (no post excavation data collected)**	Removed	Removed 18 inches (no post excavation data collected)**	Remains	Remains	Remains	Remains	Remains	Remains	Remains	Remains	Remains	Remains	Remains	Remains	Remains	Remains	Remains	Remains

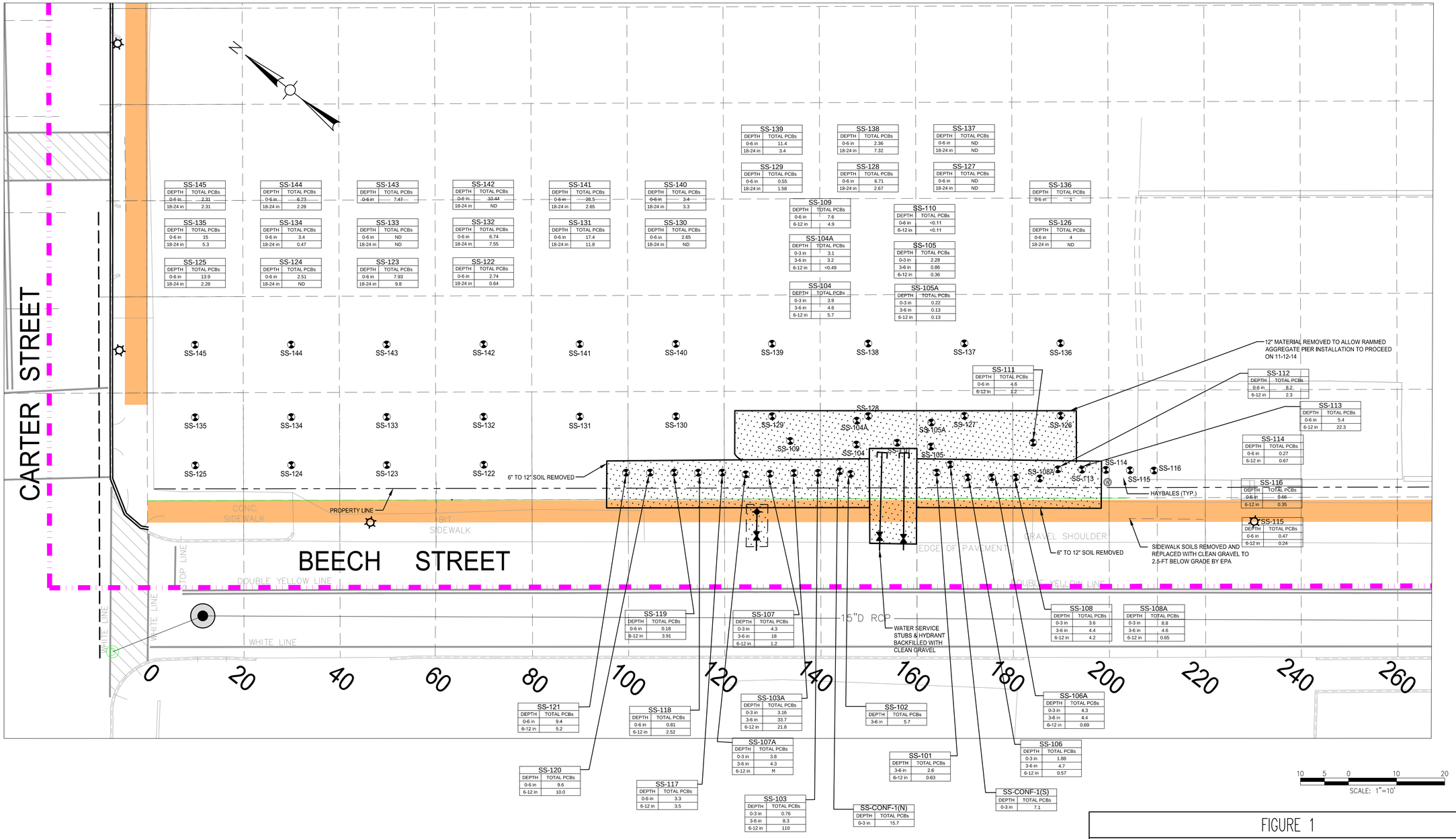
Parameter	MCP Method 1 Cleanup Standards		SAMPLING LOCATIONS																		
			SS-126	SS-127		SS-128		SS-129		SS-130		SS-131		SS-132		SS-133		SS-134		SS-135		SS-136
	S-2/GW-2	S-2/GW-3	0-6 in.	0-6 in.	18-24 in.	0-6 in.	18-24 in.	0-6 in.	18-24 in.	0-6 in.	18-24 in.	0-6 in.	18-24 in.	0-6 in.	18-24 in.	0-6 in.	18-24 in.	0-6 in.	18-24 in.	0-6 in.	18-24 in.	0-6 in.
PCBs																						
Aroclor 1016	4	4	<0.46	<0.45	<0.46	<0.49	<0.48	<0.46	<0.44	<0.45	<0.44	<2.1	<0.86	<0.44	<0.43	<0.44	<0.45	<0.49	<0.45	<1.0	<0.48	<0.46
Aroclor 1221	4	4	<0.46	<0.45	<0.46	<0.49	<0.48	<0.46	<0.44	<0.45	<0.44	<2.1	<0.86	<0.44	<0.43	<0.44	<0.45	<0.49	<0.45	<1.0	<0.48	<0.46
Aroclor 1232	4	4	<0.46	<0.45	<0.46	<0.49	<0.48	<0.46	<0.44	<0.45	<0.44	<2.1	<0.86	<0.44	<0.43	<0.44	<0.45	<0.49	<0.45	<1.0	<0.48	<0.46
Aroclor 1242	4	4	<0.46	<0.45	<0.46	<0.49	<0.48	<0.46	<0.44	<0.45	<0.44	<2.1	<0.86	<0.44	<0.43	<0.44	<0.45	<0.49	<0.45	<1.0	<0.48	<0.46
Aroclor 1248	4	4	**1.1**	<0.45	<0.46	**2.2**	**0.97**	<0.46	**0.58**	**0.95**	<0.44	**6.4**	**2.8**	**1.4**	**1.8**	<0.44	<0.45	**0.8**	<0.45	**3.4**	**1.3**	<0.46
Aroclor 1254	4	4	**2.9**	<0.45	<0.46	**3.8**	**1.7**	**0.55**	**1**	**1.7**	<0.44	**11**	**7.6**	**4.4**	**4.8**	<0.44	<0.45	**2.6**	**0.47**	**9.3**	**3.3**	**1**
Aroclor 1260	4	4	<0.46	<0.45	<0.46	**0.71**	<0.48	<0.46	<0.44	<0.45	<0.44	<2.1	**1.4**	**0.94**	**0.95**	<0.44	<0.45	<0.49	<0.45	**2.3**	**0.7**	<0.46
Aroclor 1262	4	4	<0.46	<0.45	<0.46	<0.49	<0.48	<0.46	<0.44	<0.45	<0.44	<2.1	<0.86	<0.44	<0.43	<0.44	<0.45	<0.49	<0.45	<1.0	<0.48	<0.46
Aroclor 1268	4	4	<0.46	<0.45	<0.46	<0.49	<0.48	<0.46	<0.44	<0.45	<0.44	<2.1	<0.86	<0.44	<0.43	<0.44	<0.45	<0.49	<0.45	<1.0	<0.48	<0.46
Total PCBs	4	4	**4**	ND	ND	**6.71**	**2.67**	**0.55**	**1.58**	**2.65**	ND	**17.4**	**11.8**	**6.74**	**7.55**	ND	ND	**3.4**	**0.47**	**15**	**5.3**	**1.0**
			Removed	<1	<1	Removed	Remains	<1	Remains	Remains	Remains	Remains	Remains	Remains	Remains	Remains	Remains	Remains	Remains	Remains	Remains	Remains

Parameter	MCP Method 1 Cleanup Standards		SAMPLING LOCATIONS															
			SS-137		SS-138		SS-139		SS-140		SS-141		SS-142		SS-143	SS-144		SS-145	
	S-2/GW-2	S-2/GW-3	0-6 in.	18-24 in.	0-6 in.	18-24 in.	0-6 in.	18-24 in.	0-6 in.	18-24 in.	0-6 in.	18-24 in.	0-6 in.	18-24 in.	0-6 in.	0-6 in.	18-24 in.	0-6 in.	18-24 in.
PCBs																			
Aroclor 1016	4	4	<0.48	<0.47	<0.49	<0.46	<1.0	<0.44	<0.45	<0.47	<2.3	<0.44	<0.86	<0.43	<0.47	<0.48	<0.47	<0.48	<0.45
Aroclor 1221	4	4	<0.48	<0.47	<0.49	<0.46	<1.0	<0.44	<0.45	<0.47	<2.3	<0.44	<0.86	<0.43	<0.47	<0.48	<0.47	<0.48	<0.45
Aroclor 1232	4	4	<0.48	<0.47	<0.49	<0.46	<1.0	<0.44	<0.45	<0.47	<2.3	<0.44	<0.86	<0.43	<0.47	<0.48	<0.47	<0.48	<0.45
Aroclor 1242	4	4	<0.48	<0.47	<0.49	<0.46	<1.0	<0.44	<0.45	<0.47	<2.3	<0.44	<0.86	<0.43	<0.47	<0.48	<0.47	<0.48	<0.45
Aroclor 1248	4	4	<0.48	<0.47	**0.76**	**2.2**	**3.8**	**1.1**	**1**	**1.1**	**8.5**	**0.85**	<0.86	<0.43	**2.2**	**1.6**	**0.68**	**0.71**	**0.71**
Aroclor 1254	4	4	<0.48	<0.47	**1.6**	**4.6**	**7.6**	**2.3**	**2.4**	**2.2**	**20**	**1.8**	**9.5**	<0.43	**4.7**	**3.8**	**1.6**	**1.6**	**1.6**
Aroclor 1260	4	4	<0.48	<0.47	<0.49	**0.52**	<1.0	<0.44	<0.45	<0.47	<2.3	<0.44	**0.94**	<0.43	**0.57**	**0.83**	<0.47	<0.48	<0.45
Aroclor 1262	4	4	<0.48	<0.47	<0.49	<0.46	<1.0	<0.44	<0.45	<0.47	<2.3	<0.44	<0.86	<0.43	<0.47	<0.48	<0.47	<0.48	<0.45
Aroclor 1268	4	4	<0.48	<0.47	<0.49	<0.46	<1.0	<0.44	<0.45	<0.47	<2.3	<0.44	<0.86	<0.43	<0.47	<0.48	<0.47	<0.48	<0.45
Total PCBs	4	4	ND	ND	**2.36**	**7.32**	**11.4**	**3.4**	**3.4**	**3.3**	**28.5**	**2.65**	**10.44**	ND	**7.47**	**6.23**	**2.28**	**2.31**	**2.31**
QC by NDP 3/12/2015			Remains	Remains	Remains	Remains	Remains	Remains	Remains	Remains	Remains	Remains	Remains	Remains	Remains	Remains	Remains	Remains	Remains

**** Post excavation sample was not collected due to either the presence of demarkation layer or water.**

Notes:
Concentrations are in milligram per kilogram (mg/kg
Samples collected in October 2014 through January 2015.
PCBs - Polychlorinated biphenyls
< = indicates sample result less than the applicable laboratory detection limit

BOLD	Parameter Exceeds Laboratory Detection Limit
BOLD	Parameter Exceeds MCP Method 1 Cleanup Standards
BOLD	PCBs Exceeding 50 mg/kg. Must be disposed of at TSCA-Certified Landfill.



PCB SAMPLING RESULTS:

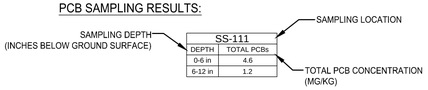


FIGURE 1

FORMER LMF SITE
CHELSEA, MASSACHUSETTS

SUMMARY OF SOIL SAMPLING ASSESSMENT RESULTS

DESIGNED BY: TMB	CHECKED BY: TPC	DATE: DECEMBER 2014

Weston&Sampson®